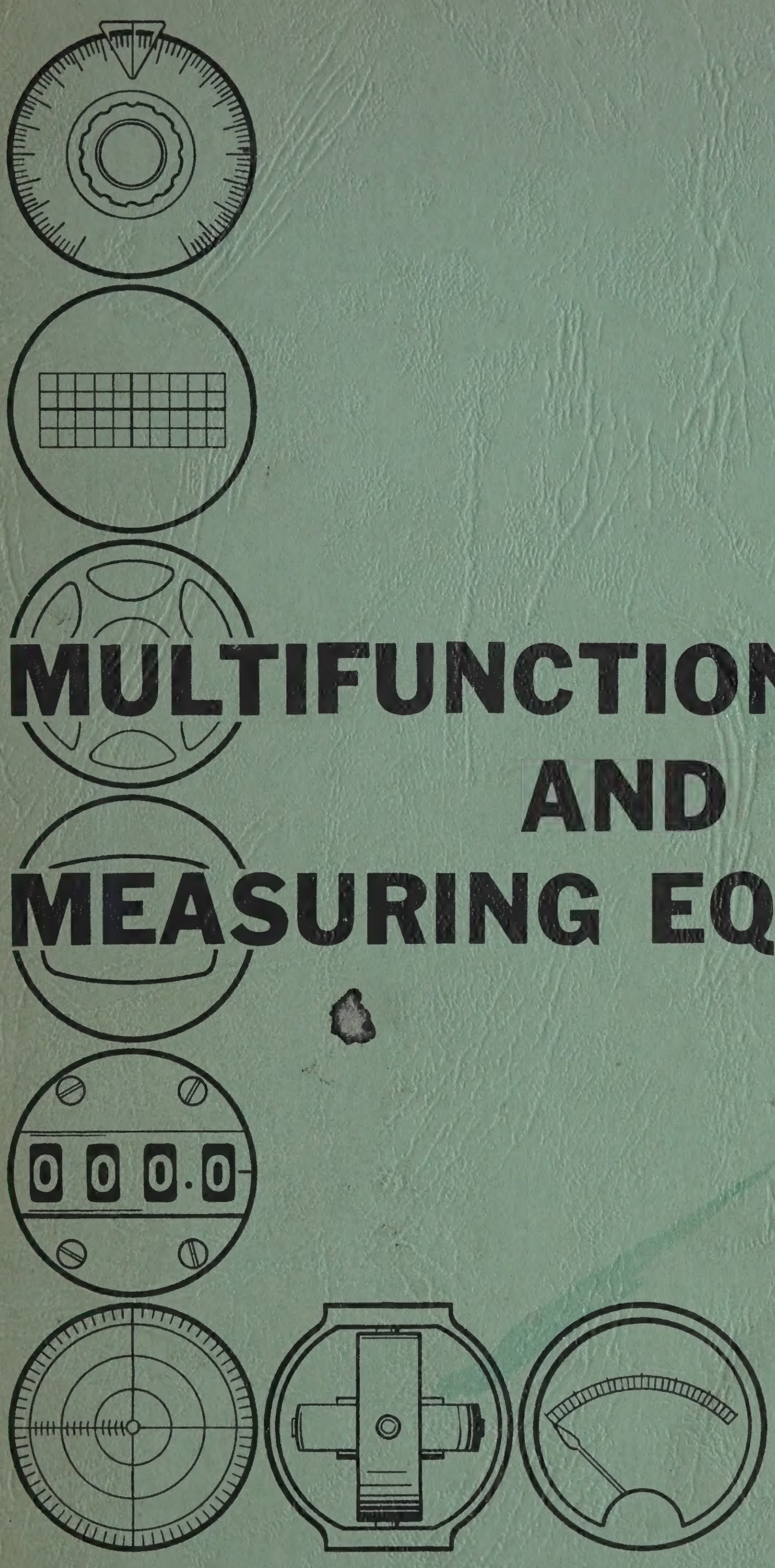
Index Vol 10
Page 31



Electrical & Electronic

TEST EQUIPMENT DATA HANDBOOK

VOLUME 10 C

MULTIFUNCTIONAL TEST AND MEASURING EQUIPMENT

FREDERICK RESEARCH CORPORATION

FRC

ELECTRICAL & ELECTRONIC

TEST EQUIPMENT DATA HANDBOOK

VOLUME 10 C

MULTIFUNCTIONAL TEST AND MEASURING EQUIPMENT

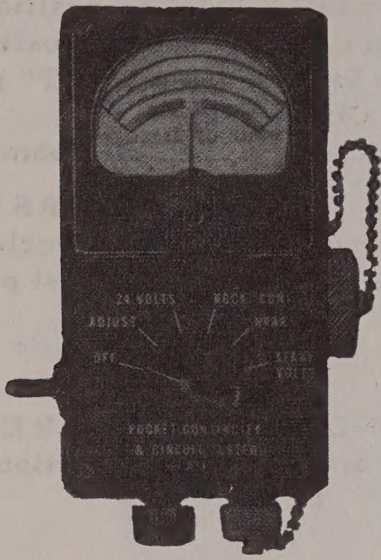
FREDERICK RESEARCH CORPORATION
2601 UNIVERSITY BOULEVARD, WEST
WHEATON, MARYLAND

NOTE

The complete Table of Contents and Index for Volume 10 is located in Volume 10, Part A. This arrangement provides a single source for location of all Multifunction Test and Measuring Equipment descriptions.

10.4 SYSTEM AND OPERATIONAL TEST EQUIPMENT

TESTER, ROCKET CONTINUITY AND CIRCUIT
Type A-1



FUNCTIONAL DESCRIPTION:

This is a portable instrument designed for testing the electrical circuits of aircraft rockets and their associated aircraft circuits.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The tester includes a three-scale meter, a safety toggle switch, a six-position selector switch, a potentiometer, and an input socket assembly. An internal dry battery is used for calibration and continuity checks. The selector switch permits setting up a calibrating circuit, two voltage measuring circuits, or two resistance measuring circuits. The potentiometer is used to calibrate the tester. A battery holder in the case is for holding the internal battery. The toggle switch permits closing the testing circuit after the proper connections and settings have been made. Electrical connection to the equipment under test is made through the appropriate one of three cables included with the tester.

Power Supply: 1.5 volts, DC, from an internal type "C" dry battery.

Scale Ranges: 30 volts in the "24 VOLTS" position.

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-801817-15		
PROCUREM'T INFO.:			
PROCUREM'T COG.: USAF	DESIGN COG.: USAF, AFAC		
F.I.I.N.:	FUNCTIONAL CLASS. NO.: 10.4		
- Electronics Test Equipment -			A-1

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TESTER, ROCKET CONTINUITY AND CIRCUIT
Type A-1

ELECTROMECHANICAL DESCRIPTION: (Continued)

Scale Ranges: (Continued)
1.5 volts in the "STRAY VOLTS" position.
0.25 to 1.25 ohms in the "HVAR" position.
0.5 to 2.5 ohms in the "ROCK CONT" position.

Accuracy: Voltage Measuring Circuits: ±4%.
Resistance Measuring Circuits: ±0.1 ohm.

MANUFACTURERS' OR CONTRACTORS' DATA:

Precision Associates, Incorporated, 354 Cumberland Street, Brooklyn 38, New York; Contract AF 33(604)7947; Approximate Cost per Unit, $50.00.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 33D5-3-3-31 (Operation and Service Instructions).

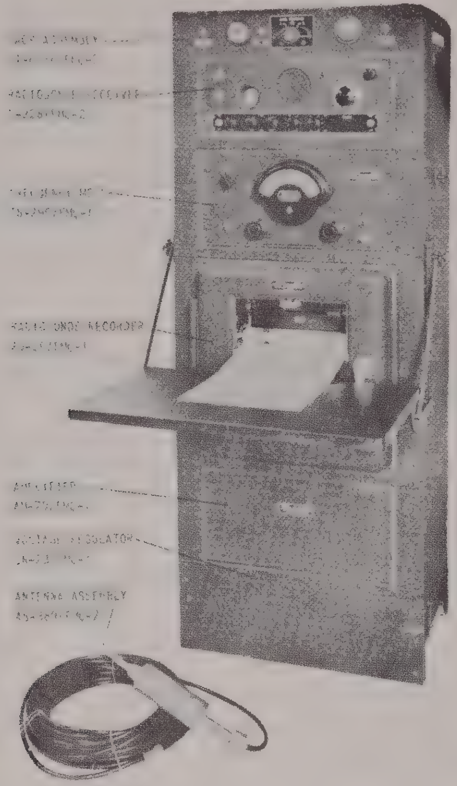
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Tester, Rocket Continuity and Circuit Type A-1	0.115	8	5-1/2	4-1/2	4

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Tester, Rocket Continuity and Circuit Type A-1	Metal	7CAC-801817-15	6-5/8	4-3/8	3-1/8	3

RADIOSONDE RECEPTOR AN/FMQ-2A



FUNCTIONAL DESCRIPTION:

A special purpose rack assembly of test equipment for depot testing the overall operation of the prime equipment designed to receive, indicate, and record signals from a radiosonde. The signals correspond to values of atmospheric pressure, temperature, and humidity. This test equipment assembly consists of an antenna assembly, receiver, frequency meter, recorder, amplifier, and voltage regulator.

RELATIONSHIP TO OTHER EQUIPMENT:

The AN/FMQ-2A Radiosonde Receptor is similar in purpose to AN/FMQ-1, -1A, and RAU Radiosonde series, but differs in the use of the receivers and antenna assembly shown in the photograph and under equipment supplied.

ELECTROMECHANICAL DESCRIPTION:

Antenna Assembly:

Type: Vertical, half-wave, concentric dipole.

Transmission Line: RG-8/U flexible coaxial, 52 ohms.

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.		F16-Q-112033-200	
PROCUREM'T INFO.: Spec. MIL-R-15823 (Ships)			
PROCUREM'T COG.: Navy		DESIGN COG.: Navy, BuShips	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4	
- Electronics Test Equipment -			AN/FMQ-2A

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

ELECTROMECHANICAL DESCRIPTION: (Continued)

Radiosonde Receiver:
  Power Supply: 115 volts ±10%, AC, 50 to 60 cycles per second, single phase, 545 watts.
  Frequency Range: 390 to 410 megacycles per second.
  Type: Superheterodyne.
  Type of Reception: Frequency Modulated, telemetering and pulse.
  Intermediate Frequency: 21.25 megacycles per second.
  Input Impedance: 52 ohms, unbalanced.
  Output Impedance: 500,000 ohms.
Frequency Meter:
  Power Supply: 115 volts, AC, 60 cycles per second, regulated, single phase.
  Frequency Range: 0 to 200 cycles per second.
Radiosonde Recorder:
  Current Range: 0 to 500 microamperes.
  Paper Feed: 0.4 inches per minute.
Amplifier:
  Power Supply: 115 volts, AC, 60 cycles per second, single phase.
Voltage Regulator:
  Input Voltage: 105 to 125 volts, AC.
  Input Current: 2.3 amperes.
  Input Frequency: 60 cycles per second ±2 cycles per second.
  Output Voltage: 115 volts ±0.5%, AC.
  Output Current: 1.3 amperes.
  Output Frequency: 60 cycles per second ±2 cycles per second.
  Phase: Single.

MANUFACTURERS' OR CONTRACTORS' DATA:

Friez Instrument Division, Bendix Aviation Corporation, Baltimore, Maryland; Navy Contracts NOas-53-268 and NOas-53-269.

TUBE COMPLEMENT:

1 JAN-6AH6, 1 JAN-OB3, 1 JAN-6ZY5G, 1 JAN-2BP1, 2 JAN-6J5, 1 JAN-2D21, 2 JAN-OD3, 2 JAN-6AG5, 1 JAN-921, 1 JAN-6AL5, 2 JAN-5Y3GT, 1 JAN-6J6, 1 JAN-6X4, 4 JAN-6BA6, 2 JAN-884, 1 JAN-2050, 2 JAN-5U4G, 2 JAN-12AX7, 3 JAN-OA3, 1 JAN-6AQ5, 1 JAN-OA2, 3 JAN-2C40. Total Tubes: 36.

REFERENCE DATA AND LITERATURE:

NAVSHIPS 91667 (Instruction Book).
NAVAER 16-30FMQ-2-501 (Instruction Book).
TO 16-30FMQ2-6 (Instruction Book).
TM 11-2434 & C1 (Instruction Book).

RADIOSONDE RECEPTOR AN/FMQ-2A

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Radiosonde Receptor AN/FMQ-2A (Export Packed)	74.0	83	44	35	780

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Radiosonde Receptor AN/FMQ-2A Including:		F16-Q-112033-200	64	25	16-1/2	380
1	Radiosonde Receiver R-288/FMQ-2		F16-R-32616-5501	7	19	17/38	60
1	Antenna Assembly AS-389/FMQ-2 Consisting of:						
1	Antenna and		F16-A-45196-1811	18	2-1/2 dia.		3
1	RF Cable RG-8/U		F16-C-12200-600 1F245-8	1200 long			10
1	Frequency Meter TS-29C/FMQ-1			8-3/4	19	10	38
1	Radiosonde Recorder RD-3E/FMQ-1			18-3/4	20-1/2	15	110
1	Amplifier AM-7D/FMQ-1			8-1/2	19	10	40
1	Voltage Regulator CN-2B/FMQ-1		F17-T-76676-2501 7A1680	5-3/4	13	5-3/4	26
1	Rack MT-678A/FMQ-2			60-1/4	25	16-1/2	93
1	Set of Spares		F16-Q-112032-300				

RADIO RECEIVER BC-342-N
(RECEIVER, RADIO, BC-342-N)

FUNCTIONAL DESCRIPTION:

A portable, special purpose equipment, used in field and depot testing a radio set by substitution for a component of the set, or by operation with various components of the set. In service, it is intended for general field usage as a superheterodyne receiver. It is ruggedly built, and is suitable for vehicular, portable, or fixed operation. It is highly sensitive and selective, and is designed for the reception of continuous wave or amplitude modulated voice or tone signals. Connections, controls and indicators on the front panel include the following: a shielded antenna connector, an unshielded antenna connector, an alignment input control to tune antennas to resonance, a band change switch, a main frequency dial, a crystal phasing control to improve receiver sensitivity, fast tuning and vernier controls, a switch to select automatic or manual volume control, a volume control knob which controls audio frequency gain on AVC and receiver sensitivity on MVC, a control knob to vary local oscillator frequency for varying the audio tone on CW operation, a switch

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	1700-216208000		2C4342N
PROCUREM'T INFO.:			
PROCUREM'T COG.: Army		DESIGN COG.: Army, SigC	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4	
	- Electronics Test Equipment -		BC-342-N

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

RADIO RECEIVER BC-342-N
(RECEIVER, RADIO, BC-342-N)

FUNCTIONAL DESCRIPTION: (Continued)

to permit operation of the receiver disabling relay remotely when using a transmitter with the receiver, a telegraph key jack, a microphone jack, a loudspeaker jack, headphone jacks, fuses for dial lamp circuit and filament circuit protection, and panel locks to secure the panel to the chassis.

RELATIONSHIP TO OTHER EQUIPMENT:

This equipment is used in testing Radio Set SCR-188-A. It is similar to Radio Receiver BC-312 except that the BC-312 uses battery and dynamotor power supply.

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The received signal from the antenna is amplified in two RF stages which use high gain pentodes providing high selectivity and sensitivity. The amplified signal goes to a converter along with the output of an RF oscillator of the positive feed-back type. The resulting IF signal goes through two IF amplifier stages. From there, the amplified IF signal goes to a detector-AVC-audio stage where the signal is demodulated and the resulting audio signal amplified. In addition, a portion of the rectified IF provides a bias voltage for the AVC of the RF, mixer, and IF stages. Output from the first AF stage goes to loudspeaker and headset output. A CW oscillator of a modified Hartley type, provides a means for producing an audio beat note when the received signal is continuous wave. A vacuum tube rectifier supplies plate voltages from the AC line.

Power Supply: 110 to 120 volts, AC, 50 to 60 cycles per second, single phase, 75 watts.

Frequency Range: 1500 to 18,000 kilocycles per second in six bands, Band A: 1500 to 3000 kilocycles per second. Band B: 3000 to 5000 kilocycles per second. Band C: 500 to 8000 kilocycles per second. Band D: 8000 to 11,000 kilocycles per second. Band E: 11,000 to 14,000 kilocycles per second. Band F: 14,000 to 18,000 kilocycles per second.

Type of Reception: Continuous Wave and Amplitude Modulated.

Intermediate Frequency: 470 kilocycles per second.

Type of Antenna: Whip or Straight Wire.

Output Impedance: 250 or 4000 ohms.

MANUFACTURERS' OR CONTRACTORS' DATA:

Farnsworth Electronics Company, formerly Farnsworth Television and Radio Corporation, Fort Wayne, Indiana; Order No. 30214-PHILA-43 dated May 1943; Approximate Cost per Unit, $293.48.

TUBE COMPLEMENT:

2 JAN-6C6, 1 JAN-6L7G, 1 JAN-12A6, 1 JAN-6R7, 4 JAN-6K7, 1 JAN-5Y3G/GT.

RADIO RECEIVER BC-342-N
(RECEIVER, RADIO, BC-342-N)

REFERENCE DATA AND LITERATURE:

TM 11-850 (TO 16-40BC-312-6) (Operating and Maintenance Instructions for BC-312, BC-342, BC-314, and BC-344.)

TO 16-40BC342-5 (Repair Instructions).

TO 16-40BC342-6 (Instruction Book).

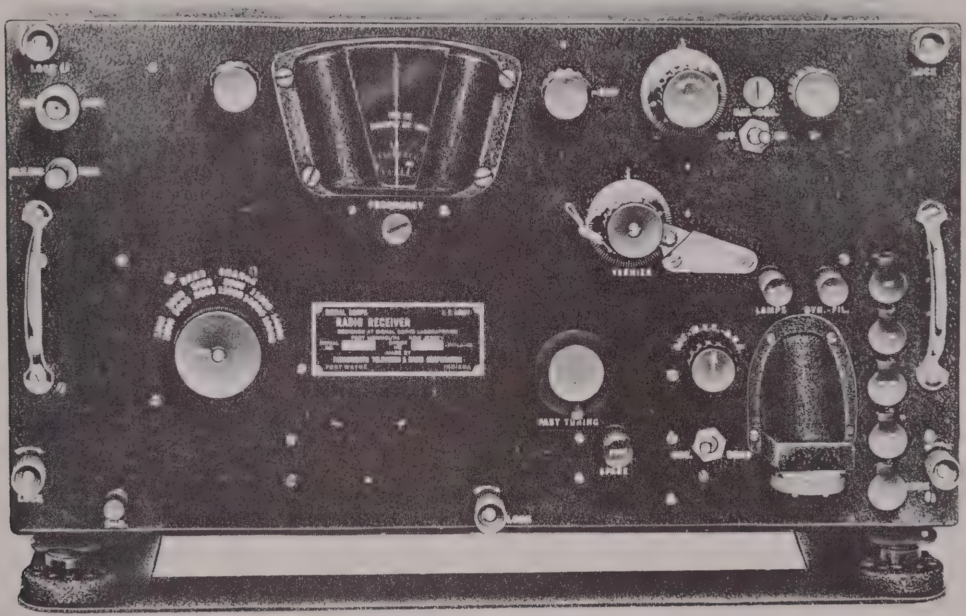
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Radio Receiver BC-342-N and Spare Parts (Export Packed)	4.6	14-3/8	25-3/8	21-7/8	195.75

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Radio Receiver BC-342-N	Aluminum	1700-216208000 2C4342N	10	18-1/16	9-1/16	61.5
1	Rectifier RA-20			3-1/4	6-1/2	6-1/8	10.5
1	Mounting FT-162			1-1/4	18	6-7/8	3.75
1	Fuse, FU-27						
3	Fuse, FU-21-A						
2	Lamp, LM-27						
						Total:	75.75

RADIO RECEIVER BC-344-D
(RECEIVER, RADIO, BC-344-D)



FUNCTIONAL DESCRIPTION:

A portable, special purpose equipment, used in field and depot testing of a radio set by substitution for a component of the set, or by operation with various components of the set. In service, it is intended for general field usage as a superheterodyne receiver. It is built ruggedly and is suitable for vehicular, portable, or fixed operation. It is highly sensitive and selective and is designed for the reception of continuous wave or amplitude modulated voice or tone signals. Connections, controls, and indicators on the front panel include a shielded antenna connector, an unshielded antenna connector, an alignment input control to tune antennas to resonance, a band change switch, a main frequency dial, a crystal phasing control to improve receiver sensitivity, fast tuning and vernier controls, a switch to select automatic or manual volume control, a volume control knob which controls audio frequency, gain on AVC and receiver sensitivity on MVC, a control knob to vary local oscillator frequency for varying the audio tone on Continuous Wave operation, a switch to permit operation of the receiver disabling relay remotely when using a transmitter

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	1760-216238000		2C4344
PROCUREM'T INFO.:			
PROCUREM'T COG.: Army		DESIGN COG.: Army, SigC	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4	
- Electronics Test Equipment -			BC-344-D

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

RADIO RECEIVER BC-344-D
(RECEIVER, RADIO, BC-344-D)

FUNCTIONAL DESCRIPTION: (Continued)

with the receiver, a telegraph key jack, a microphone jack, a loudspeaker jack, headphone jacks, fuses for dial lamp circuit and filament circuit protection, and panel locks to secure the panel to the chassis.

RELATIONSHIP TO OTHER EQUIPMENT:

This equipment is used in testing Radio Set SCR-188-A. It is similar to Radio Receiver BC-314 except that the BC-314 uses a battery and dynamotor power supply.

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The received signal from the antenna is amplified in two Radio Frequency stages which use high gain pentodes providing high selectivity and sensitivity. The amplified signal goes through two intermediate frequency amplifier stages. From there, the amplified intermediate frequency signal goes to a detector-AVC-audio stage where the signal is demodulated and the resulting audio signal amplified. In addition, a portion of the rectified IF provides a bias voltage for the AVC of RF, mixer, and IF stages. Output from the first AF stage goes to loudspeaker and headset outputs. A CW oscillator of a modified Hartley type, provides a means for producing an audio beat note when the received signal is continuous wave. A vacuum tube rectifier supplies plate voltages from the AC line.

Power Supply: 110 to 120 volts, AC, 50 to 60 cycles per second, single phase, 75 watts.

Frequency Range: 150 to 1500 kilocycles per second. Band A: 150 to 260 kilocycles per second. Band B: 260 to 450 kilocycles per second. Band C: 450 to 820 kilocycles per second. Band D: 820 to 1500 kilocycles per second.

Type of Reception: Continuous Wave, Amplitude Modulated.

Intermediate Frequency: 92.5 kilocycles per second.

Type of Antenna: Whip or Straight Wire.

Output Impedance: 250 to 4000 ohms.

MANUFACTURERS' OR CONTRACTORS' DATA:

Farnsworth Electronics Company, formerly Farnsworth Television and Radio Corporation, Fort Wayne, Indiana; Order No. 6965-PHILA-44 dated September 1943; Approximate Cost per Unit, $304.36.

TUBE COMPLEMENT:

2 JAN-6C6, 1 JAN-6L7G, 1 JAN-6F6, 1 JAN-6R7, 4 JAN-6K7, 1 JAN-5Y3G/GT.

REFERENCE DATA AND LITERATURE:

TM 11-850 (TO 16-40BC312-6) (Operation and Maintenance Instruction for BC-312, BC-342, BC-314, and BC-344.

TM 11-4002 (TO 16-40BC314-7) (Repair Instructions).

RADIO RECEIVER BC-344-D
(RECEIVER, RADIO, BC-344-D)

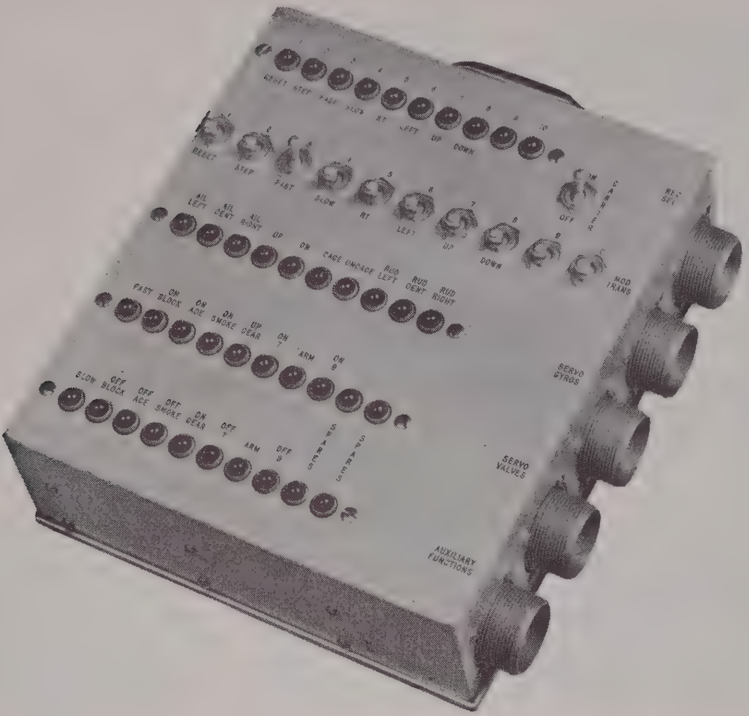
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Radio Receiver BC-344-D and Spare Parts (Export Packed)	4.6	14-3/8	25-3/8	21-7/8	195.75

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Radio Receiver BC-344-D	Aluminum	1760-216238000 2C4344	10	18-1/16	9-1/16	61.5
1	Rectifier RA-20			3-1/4	6-1/2	6-1/8	18.5
1	Mounting FT-162			1-1/4	18	6-7/8	3.75
1	Fuse, FU-27						
3	Fuse, FU-21-A						
2	Lamp, LM-27						
						Total:	75.75

TEST UNIT BC-914
(TEST SET, RADIO, BC-914)


RESET
STEP
FAST
SLOW
RT
LEFT
UP
DOWN
AIL LEFT
AIL CENT
AIL RIGHT
UP
ON
CAGE
UNCAGE
RUD LEFT
RUD CENT
RUD RIGHT
FAST
ON BLOCK
ON ACE
ON SMOKE
UP GEAR
ON 7
ARM
ON 9
SLOW
OFF BLOCK
OFF ACE
OFF SMOKE
ON GEAR
OFF 7
ARM
OFF 9
SPARES
SPARES
OFF
CARRIER
MOD TRANS
SERVO GYROS
SERVO VALVES
AUXILIARY FUNCTIONS

FUNCTIONAL DESCRIPTION:

A portable unit used for operating and maintenance tests on certain Target Control Transmitting and Receiving Sets and other similar equipment. The test set serves as a temporary control for the audio frequency circuits of the transmitting equipment, and will indicate proper functioning of the control circuits of certain units comprising the receiving equipment. Four rows of lamps and eleven switches, mounted on one of the larger sides, provide the necessary controls and indicators.

RELATIONSHIP TO OTHER EQUIPMENT:

Used to test equipment such as RC-64 and RC-65.

BC-914 is functionally interchangeable with BC-914-A. BC-914 is housed in an aluminum case and is packed in a wooden box while B-914-A is housed in a steel case and is packed with transit case CS-160 without the wooden box. Cord CD-866 is superseded by CD-866-A for use with BC-914-A.

	AIR FORCE	NAVY	ARMY
TYPE CLASS.	Alternate Standard		
STOCK NOS.	7CAC-801319-2632		3F4456-914
PROCUREM'T INFO.:	USAF Spec. No. 71-5056		
PROCUREM'T COG.:	USAF	DESIGN COG.:	USAF, ARL
F.I.I.N.:		FUNCTIONAL CLASS. NO.:	10.4
	- Electronics Test Equipment -		BC-914

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TEST UNIT BC-914
(TEST SET, RADIO, BC-914)

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: Consists of indicator lamps, toggle switches, and sockets wired for connection to various cables of Relay Unit BC-622.

Power Supply: Two 1.5 volt Batteries BA-30 (3 volts total) are used as internal power source for the lamps in the upper row. The three lower rows of lamps receive their power (12 or 24 volts DC) through the unit under test.

MANUFACTURERS' OR CONTRACTORS' DATA:

Doolittle Radio, Inc., 7421 South Loomis Boulevard, Chicago 36, Illinois; Contract No. 11792-WF-43.

Air Communications, Inc., Contract No. 476-DAY-44.

Wells Gardner and Company, 2701 North Kildare Avenue, Chicago, Illinois; Contract No. 143-DAY-45-SD; Approximate Cost per Unit, $110.00.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 16-40BC914-3 (Maintenance Instructions).

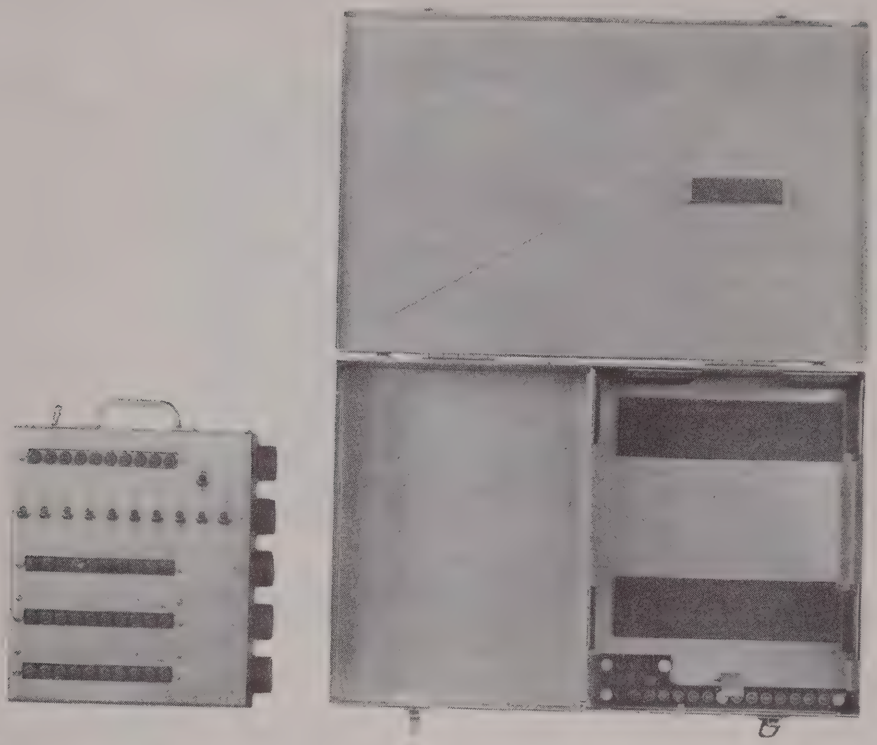
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Test Unit BC-914 (Export Packed)	2.3	17	11	21	28.7

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Test Unit BC-914	Aluminum	7CAC-801319-2632 3F4456-914	9-1/4	3-3/16	10-3/16	5.2

TEST UNIT BC-914-A
(TEST SET, RADIO, BC-914-A)



FUNCTIONAL DESCRIPTION:

A portable unit used for operating and maintenance tests on certain target control transmitting and receiving sets and other similar equipment. The test set serves as a temporary control for the audio frequency circuits of the transmitting equipment, and will indicate proper functioning of the control circuits of certain units comprising the receiving equipment. Four rows of lamps and eleven switches, mounted on one of the larger sides, provide the necessary controls and indicators.

RELATIONSHIP TO OTHER EQUIPMENT:

Used to test equipment such as RC-64 and RC-65.

BC-914-A is functionally interchangeable with BC-914. BC-914-A is housed in a steel case and is packed with Transit Case CS-160 without a wooden box while BC-914 is housed in an aluminum case and is packed in a wooden box. Cord CD-866 is used with BC-914 instead of CD-866-A used with BC-914-A.

	AIR FORCE	NAVY	ARMY
TYPE CLASS.	Standard		
STOCK NOS.	7CAC-801319-2552		3F4470-914-A
PROCUREM'T INFO.: Spec. MIL-T-4675 (USAF) dtd. 19 May 1953			
PROCUREM'T COG.: USAF		DESIGN COG.: USAF, ARL	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4	
- Electronics Test Equipment -			BC-914-A

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Betheeda, Md. - Multilithed in U. S. A.

TEST UNIT BC-914-A
(TEST SET, RADIO, BC-914-A)

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: Consists of indicator lamps, toggle switches, and sockets wired for connection to various cables of Relay Unit BC-622.

Power Supply: Two 1.5 volt Batteries BA-30 (3 volts total) are used as internal power source for the lamps in the upper row. The three lower rows of lamps receive their power (12 or 24 volts DC) through the unit under test.

MANUFACTURERS' OR CONTRACTORS' DATA:

Wells Gardner and Company, 2701 North Kildare Avenue, Chicago, Illinois; Order No. 143-DAY-45; Approximate Cost per Unit, $248.00.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 16-40BC914-3 (Maintenance Instructions).

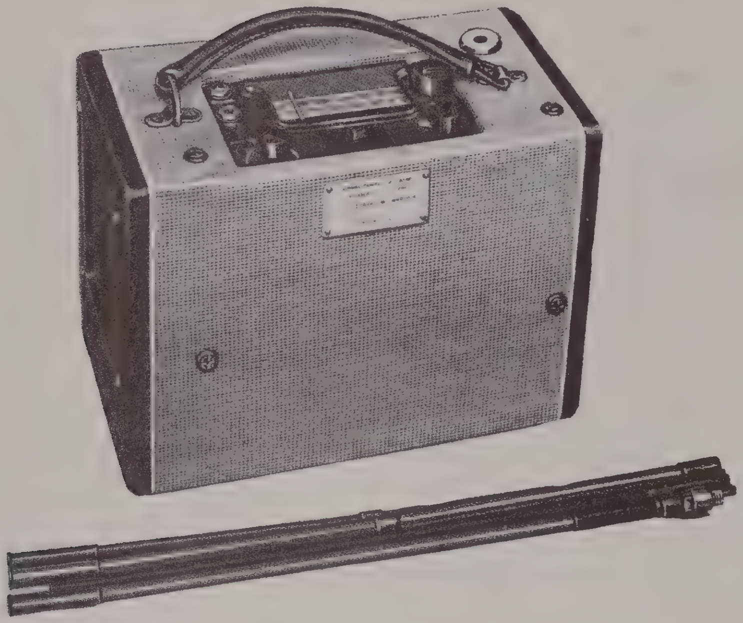
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Test Unit BC-914-A (Export Package)	2.30	17	11	21	28.7

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Test Unit BC-914-A	Steel	7CAC-801319-2552	9-1/4	3-3/16	10-3/16	5.2
3	Cord CD-866-A		3F4470-914-A				

RADIO RECEIVER R-206A/PR



FUNCTIONAL DESCRIPTION:

A portable, general purpose radio receiver used in maintaining a ground navigation radar set. It aids in aligning receiver components, testing for receiver sensitivity, and testing transmitter frequency and output. It includes a self-contained loop antenna, a collapsible whip antenna, and a loudspeaker. It can operate from an AC or DC power source, or on its own self-contained batteries. When a power output meter is connected to the meter jack and used as a level indicator, the receiver may be used for comparative measurement of field strength.

RELATIONSHIP TO OTHER EQUIPMENT:

This equipment is similar to Lear Model RM402G modified radio receiver.

FUNCTIONAL DESCRIPTION:

Circuit Information: This equipment contains a conventional seven-tube superheterodyne receiver circuit, modified to include continuous wave reception.

Power Supply: 105 to 125 volts, AC, 50 to 60 cycles per second, single phase, 40

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.			2C4180-206A
PROCUREM'T INFO.:			
PROCUREM'T COG.: USAF		DESIGN COG.: USAF, Rome	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4	
	- Electronics Test Equipment -		R-206A/PR

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A

RADIO RECEIVER R-206A/PR

ELECTROMECHANICAL DESCRIPTION: (Continued)

watts; or 105 to 125 volts, DC; or 90 volts, DC, supplied by two Batteries BA-63 (45 volts) and 7.5 volts, DC, supplied by one Battery Ray-O-Vac P-85-A (7.5 volts).

Frequency Range: Band No. 1, 195 to 410 kilocycles per second; Band No. 2, 540 to 1560 kilocycles per second; Band No. 3, 2200 to 6200 kilocycles per second.

Type of Reception: Amplitude Modulated Tone or Voice, Continuous Wave.

Intermediate Frequency: 455 kilocycles per second.

Power Output: 50 milliwatts on battery operation; 0.5 watts on AC or DC operation.

Sensitivity (for 50 milliwatts output on battery operation):

	Whip Antenna:	Loop Antenna:
Band No. 1:	20 microvolts	100 microvolts per meter
Band No. 2:	15 microvolts	200 microvolts per meter
Band No. 3:	15 microvolts	

MANUFACTURERS' OR CONTRACTORS' DATA:

Lear, Inc., 110 Ionia Avenue, Northwest, Grand Rapids 2, Michigan; Army Order 11919-PHILA-47, dated 22 September 1948; Approximate Cost per Unit, $56.00.

TUBE COMPLEMENT:

2 JAN-1N5GT, 2 JAN-1A7GT, 1 JAN-1H5GT, 1 JAN-50B5, 1 JAN-35W4.

REFERENCE DATA AND LITERATURE:

Manufacturer's Instruction Book.

TM 11-5011 (Modification).

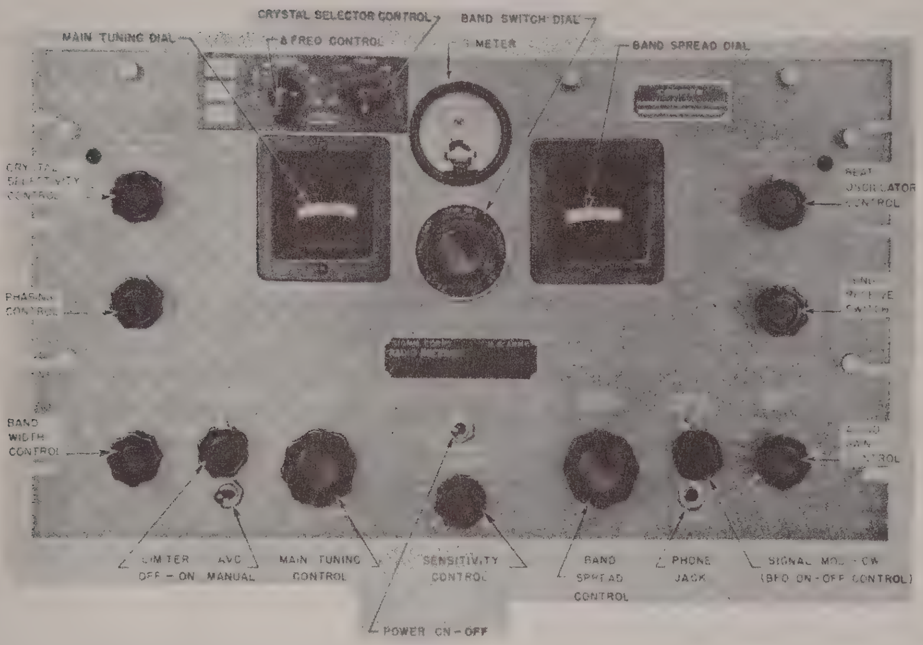
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Radio Receiver R-206A/PR (Export Packed)	2.25	16-1/2	22-1/2	10-1/2	21.5

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Radio Receiver R-206A/PR	Wood	2C4180-206A	8-1/2	12	6	9-3/4 (less batteries)
1	Whip Antenna			128-3/4 (extended) 17-3/4 (collapsed)			3/4

RADIO RECEIVER R-270/FRR
(RECEIVER, RADIO, R-270/FRR)


CRYSTAL SELECTOR CONTROL
BAND SWITCH DIAL
MAIN TUNING DIAL
& FREQ CONTROL
S METER
BAND SPREAD DIAL
CRYSTAL SELECTIVITY CONTROL
BEAT OSCILLATOR CONTROL
PHASING CONTROL
BAND WIDTH CONTROL
LIMITER OFF – ON
AVC MANUAL
MAIN TUNING CONTROL
SENSITIVITY CONTROL
BAND SPREAD CONTROL
PHONE JACK
SIGNAL MOD - CW (BFO ON - OFF CONTROL)
POWER ON – OFF

FUNCTIONAL DESCRIPTION:

A special purpose, superheterodyne receiver used in testing components of a radio receiving set by substitution. In service, it is a component of the set, used for radio communication and special radio teletype reception, but it is used separately in testing other components of the set in depots. All indicators, controls, and connections, except for power supply, IF output, antenna, ground, AF input, and matched load AF output connections are on the front panel. The exceptions are on the rear of the equipment. The receiver is normally mounted in a standard 19-inch floor mounted rack.

RELATIONSHIP TO OTHER EQUIPMENT:

This receiver is used in testing Radio Receiving Set AN/FRR-12.

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The radio frequency signal as received is amplified in two

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.			2C4180-270
PROCUREM'T INFO.: Army Spec. 71-3280			
PROCUREM'T COG.: Army		DESIGN COG.: Army, CSL	
F.I.I.N.:		FUNCTIONAL CLASS: 10.4	
- Electronics Test Equipment -			R-270/FRR

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

RADIO RECEIVER R-270/FRR
(RECEIVER, RADIO, R-270/FRR)

ELECTROMECHANICAL DESCRIPTION: (Continued)
stages, then fed to a mixer. The local oscillator is either a modified Hartley or a crystal-controlled oscillator. One of these is selected by a switch for combining in the mixer to heterodyne the modulated RF carrier to an intermediate frequency. A crystal filter is used between the mixer and the first IF stage. A portion of the IF output is available at an IF output jack. A limiter may be inserted by a switch to reduce undesired noise at the detector. A beat frequency oscillator of slightly lower frequency than the IF. is mixed with the IF in the detector. The pitch of the audio frequency beat note may be varied. The AF amplifier has three stages, first a triode amplifier, second a pentode driver, and the third is a push-pull output stage. There are two AF outputs. One is for a loudspeaker or matching audio transmission line. The other is connected to a phone jack for headphones.

Power Supply: -50, +25, +38, +100 volts, DC, and 6.3 volts, AC, 25 to 60 cycles per second, single phase, about 200 watts over-all, normally supplied by a power supply unit RA-74-D, but separate power sources may be used.

Frequency Range: 1.25 to 40.0 megacycles per second in five bands: 1.25 to 2.5, 2.5 to 5.0, 5.0 to 10.0, 10.0 to 20.0, 20.0 to 40.0 megacycles per second. Note: Operation above 30 megacycles per second under special conditions only.

Intermediate Frequency: 465 kilocycles per second.

Beat Frequency: 462.45 kilocycles per second.

Type of Reception: Continuous Wave, Modulated Continuous Wave, Amplitude Modulated, and some types of Frequency Modulation.

Sensitivity: 2 microvolts up to 20 megacycles per second, and 5 microvolts from 20 to 40 megacycles per second, for 500 milliwatt audio frequency output (any audio frequency with carrier modulated 30% at 400 cycles per second) with intermediate frequency output at least 200 millivolts.

Audio Frequency Output: Up to 3 watts without distortion; up to 10 watts maximum.

Audio Frequency Output Impedance: 600 ohms.

MANUFACTURERS' OR CONTRACTORS' DATA:

Hammarlund Manufacturing Company, Inc., New York, New York; Army Order No. 12618-PHILA-47-77; Hammarlund part/dwg. No. 2957-GI; Approximate Cost per Unit, $700.00.

TUBE COMPLEMENT:

3 JAN-6F6, 1 JAN-6SN7GT, 1 JAN-6N7, 1 JAN-6J7, 1 JAN-6J5, 3 JAN-6SK7Y, 3 JAN-6K7, 1 JAN-6AC7, 1 JAN-6SJ7, 1 JAN-6H6, 1 JAN-6L7.

REFERENCE DATA AND LITERATURE:

TM 11-896 (TO16-30FRR12-5) (Operating and Maintenance Instruction for AN/FRR-12.

RADIO RECEIVER R-270/FRR
(RECEIVER, RADIO, R-270/FRR)

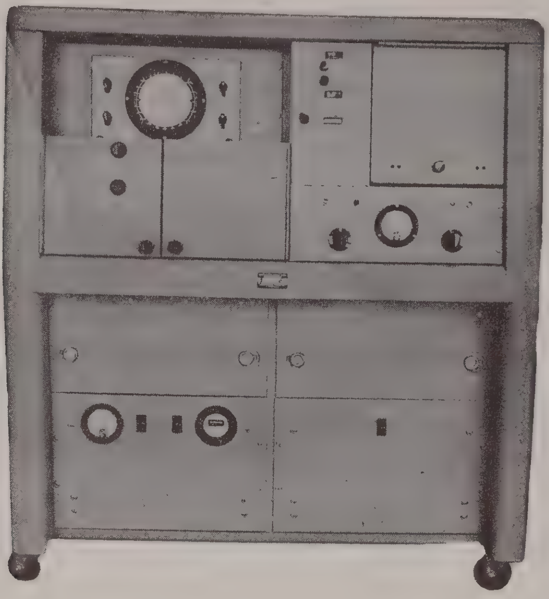
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Radio Receiver R-270/FRR (Export Packed)	4.5	15-1/2	24-1/2	21-1/4	117

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Radio Receiver R-270/FRR	Metal	2C4180-270	10-1/2	19	16-3/4	60.5

SIGNAL DATA REPRODUCER RP-106/GPH



FUNCTIONAL DESCRIPTION:

A special purpose test equipment designed to reproduce the attack display of the E-4 Fire Control System. The original signal is recorded on Signal Data Recorder RO-14/APH and then displayed on a dual-beam oscilloscope in the signal data reproducer. One beam displays the position steering dot, artificial horizon, time circle, and reference circle. The second beam displays the DC range voltage obtained from the recorded Fire Control System signals. The equipment also provides means for checking the operation of the signal data recorder.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: Magnetic tape, on which the attack display has been recorded, is drawn over playback heads in the reproducer. The magnetic flux patterns on the tape modulate carrier sine waves which are generated by a carrier oscillator. The modulated signals are received by intensity, range, and deflection receivers. A range demodulator converts the signals into the forms required by the oscilloscope for display. A DuMont dual-beam oscilloscope accepts signals from the receiver for visual display. A drive unit controls the speed of playback and rewind of the tape. Two self-contained power supplied provide tube voltages, "On-Target" voltage to the recorder, and power to operate the recorder motor.

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-687088		
PROCUREM'T INFO.:			
PROCUREM'T COG.: USAF		DESIGN COG.: USAF, WADC, WGL	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4	
	- Electronics Test Equipment -		RP-106/GPH

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

SIGNAL DATA REPRODUCER RP-106/GPH

ELECTROMECHANICAL DESCRIPTION: (Continued)

The reproducer is also capable of introducing test signals into the recorder. These signals are tape recorded and then played back on the reproducer. The oscilloscope display and a signal level meter indicate the operating condition of the recorder. Means are provided for a self-test of the reproducer circuits.

Power Supply: 115 volts, AC, single-phase, 60 cycles per second, 9.7 amperes (maximum).

Internal Power Output: 36 volts, AC; 115 volts, AC, 400 cycles per second; 100 volts, AC, 400 cycles per second.

Frequency Response: 5 to 3000 cycles per second, on 4 channels.

MANUFACTURERS' OR CONTRACTORS' DATA:

Autonetics Division of North American Aviation, Incorporated, Downey, California; Contract No. AF 33(600)22303; Approximate Cost per Unit, $17,000 (for nine or less units), $14,000 (for ten or more units).

TUBE COMPLEMENT:

1 JAN-OA2, 1 JAN-OA2WA, 1 JAN-OB2WA, 2 JAN-1X2A, 1 JAN-5AFP7, 4 JAN-5R4WGB, 2 JAN-5V4G, 4 JAN-6AK6WA, 2 JAN-6AL5, 3 JAN-6AU6WA, 4 JAN-6CL6, 4 JAN-6J6, 2 JAN-6L6WGB, 2 JAN-6Q5G, 12 JAN-ATTWA, 12 JAN-12AU7, 2 JAN-12AX7, 4 JAN-811A, 4 JAN-5751WA, 5 JAN-5814WA, 2 JAN-6080WA, 2-3-14 Ballast.

REFERENCE DATA AND LITERATURE:

TO 33A1-8-115-2 (formerly 12S1-2GPH-102) (Handbook, Service Instructions).
TO 33A1-8-115-3 (Handbook, Overhaul Instructions).
TO 16-35RP106-4 (Handbook, Illustrated Parts Breakdown).

SHIPPING DATA:

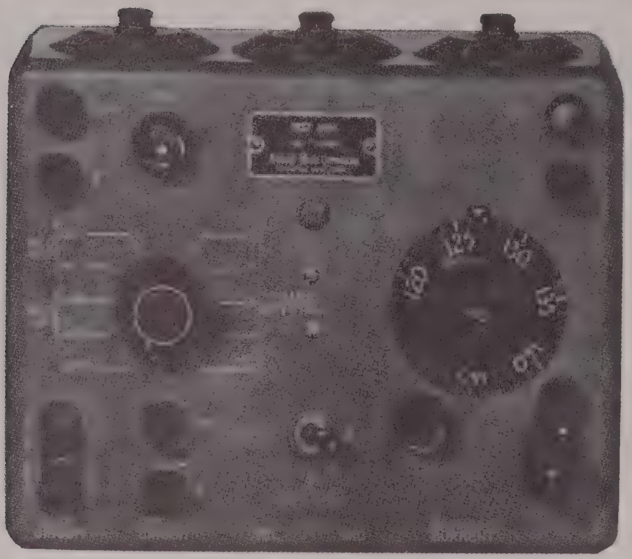
No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

SIGNAL DATA REPRODUCER RP-106/GPH

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Signal Data Reproducer RP-106/GPH	Steel Gray Wrinkle	7CAC-687088	48	43	28	600
1	Magnetic Tape Eraser, Hallen 5500						
1	Power Cable Assembly NAA10090-307						
1	Test Jumper NAA 11121-307						
1	Test Signal Cable Assembly NAA 10133-307						
1	Shielded Cable NAA 11122-307						
1	Tape Drive Test Cable Assembly NAA11166-307						
1	Receiver Test Cable Assembly NAA 11165-307						
1	Head Demagnetizer Audio Devices Type 400						

BENCH TEST KIT
Part No. 16100
(Aircraft Radio Corporation)



FUNCTIONAL DESCRIPTION:

This is a portable, general purpose test kit designed for use in bench testing any of the ARC Type 12 receivers or transmitters. The test kit consists of a test unit with cables and accessories. The test unit functions as a control unit.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The test unit circuit contains a double-pole, eleven-position selector switch which permits (1) turning the power on or off, (2) actuating the loop relay on R-10A or R-11A receivers, (3) switching to high or low volume positions on either R-15 or R-19 VHF receivers, and (4) switching to either of the five crystal positions in the transmitter under test. Jacks are provided on the panel for connecting external meters to read low voltage, high voltage, and transmitter output power. A toggle switch is provided for selecting telephone headset or transmitter sidetone circuitry for testing. Radio frequency sensitivity is controlled by a variable resistor mounted on the panel. On the under side of the test unit are jacks for (1) plugging in an external AC voltmeter for telephone check,

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.		R16ARC-FES 1016	2Z 5727-475
PROCUREM'T INFO.: Sig C Order No. 21727-Phila-56-56(31)			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4	
- Electronics Test Equipment -			ARC 16100

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U.S.A.

BENCH TEST KIT
Part No. 16100
(Aircraft Radio Corporation)

ELECTROMECHANICAL DESCRIPTION: (Continued)

(2) for plugging in an external DC milliammeter for cathode current check, and (3) for plugging in a microphone. Also, on the under side of the test unit are connectors for connecting the loop coaxial cables, the cable harness, and the mechanical linkage to the receiver under test. Any one of four removable dials may be connected at the unit front panel for controlling the mechanical linkage.

Power Supply: 14 or 28 volts, DC, (determined by equipment under test).

MANUFACTURERS' OR CONTRACTORS' DATA:

The Aircraft Radio Corporation, Boonton, New Jersey.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

Instruction Book "Bench Test Kit for ARC Type 12 Equipment."

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Bench Test Kit (ARC 16100)		R16ARC-FES1016 2Z5727-475				
	Consisting of:						
1	Test Unit (ARC 15990)	Metal					
1	Cable Harness (ARC 16080)						

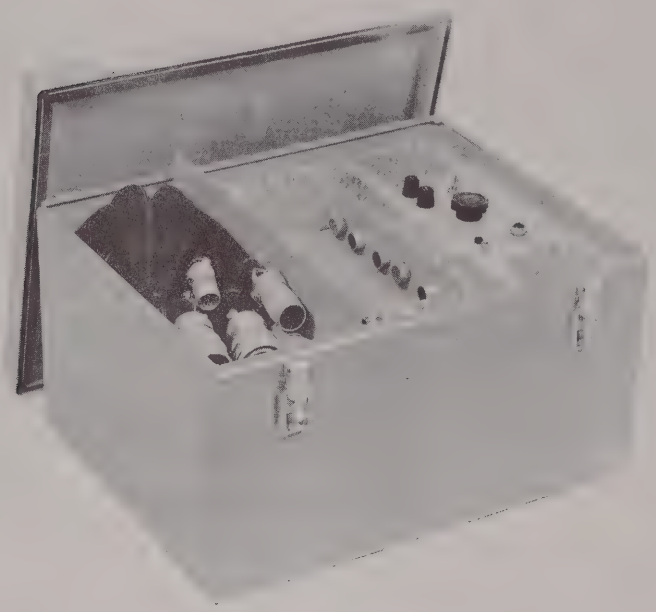
(Continued)

BENCH TEST KIT
Part No. 16100
(Aircraft Radio Corporation)

EQUIPMENT SUPPLIED: (Continued)

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
2	Test Rack (ARC 16083)						
2	Cable Ass'y (ARC 11369)			96 long			
1	Mechanical Linkage Ass'y (ARC 16158)			60 long			
1	Wrench (ARC 10307)						
1	Test Probe (ARC 16139)						
2	Plug PL-55 (ARC 7086)						

TESTER
Part No. UG145A-1
(Minneapolis-Honeywell Regulator Company)



FUNCTIONAL DESCRIPTION:

A portable instrument which is used for the electrical testing of the type E-12 Automatic Pilot. It is used to check the system when installed in an aircraft and also in conjunction with the UG184A-1 (E-12 Autopilot System) Mockup Flyaway Test Bench to make a mockup check of the autopilot system.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The circuit includes cables and AN connectors for electrical connections to the unit under test and plug-in facilities for connection of the servo amplifiers. The tester is used to make point-to-point voltage checks on the autopilot systems by means of easily accessible pin jacks and to simulate a J-2 compass signal for use with the UG184A-1 Test Bench in mockup checks. The simulated compass signal is adjustable by means of the signal control on the front panel of the tester. Servo amplifiers under test are removed from the

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-806023		
PROCUREM'T INFO.:			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4	
	- Electronics Test Equipment -M. -Honeywell UG145A-1		

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TESTER
Part No. UG145A-1
(Minneapolis-Honeywell Regulator Company)

ELECTROMECHANICAL DESCRIPTION: (Continued)

autopilot calibrator unit and placed in a recess on the front panel of the tester where provisions are made for electrical connections. After the necessary conconnections have been made, the autopilot system is energized and the power switch on the front panel of the tester is placed in the "on" position. The indicator lamp on the front panel of the tester denotes continuity. By the use of a vacuum tube voltmeter the line voltage during the test may be determined.

Power Supply: Received from unit under test.

Input Voltage: 115 volts, AC, 400 cycles per second, single phase.

MANUFACTURERS' OR CONTRACTORS' DATA:

Minneapolis-Honeywell Regulator Company, 2753 Fourth Avenue, Minneapolis 8, Minnesota; Contract No. AF 33(600)19245.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 33D3-4-32-1 (Instruction and Parts Breakdown).

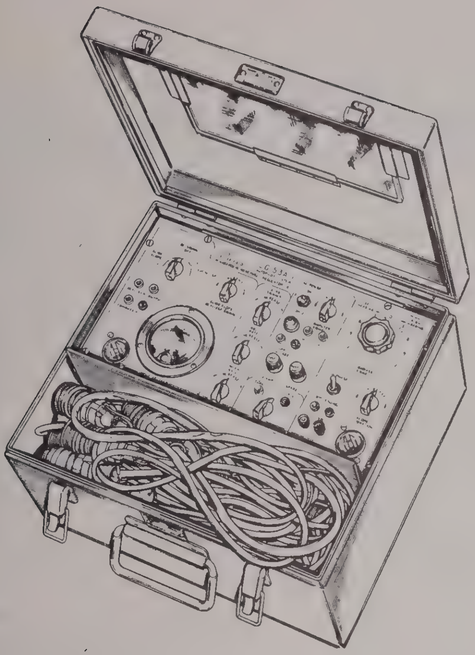
SHIPPING DATA:

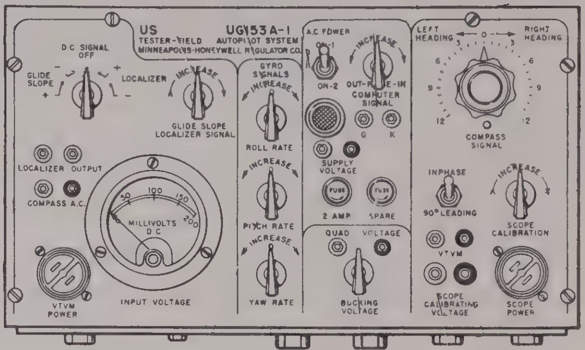
No. of Boxes	**Contents & Identification**	**Volume (Cu. Ft.)**	**Overall Dimensions (inches)**			**Weight Packed (Lbs.)**
			H	**W**	**D**	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	**Name and Nomenclature**	**Case Mat'l**	**Stock (USAF) Numbers (Navy) (Army)**	**Overall Dimensions (inches)**			**Weight (Lbs.)**
				H	**W**	**D**	
1	Tester Minneapolis-Honeywell Part No. UG145A-1	Metal	7CAC-806023	11.97	20.18	15.77	37

TESTER, FIELD, AUTOPILOT SYSTEM
Part No. UG 153A-1
(Minneapolis-Honeywell Regulator Company)




US
TESTER-FIELD
UG153A-1
AUTOPILOT SYSTEM
MINNEAPOLIS-HONEYWELL REGULATOR CO.
D C SIGNAL OFF
GLIDE SLOPE
LOCALIZER
INCREASE
GLIDE SLOPE LOCALIZER SIGNAL
GYRO SIGNALS
INCREASE
ROLL RATE
INCREASE
PITCH RATE
INCREASE
YAW RATE
A.C. POWER
ON-1
ON-2
INCREASE
OUT-PHASE-IN
COMPUTER SIGNAL
G
K
SUPPLY VOLTAGE
FUSE
FUSE
2 AMP
SPARE
QUAD VOLTAGE
BUCKING VOLTAGE
LEFT HEADING
0
RIGHT HEADING
3
6
9
12
3
6
9
12
COMPASS SIGNAL
INPHASE
90° LEADING
INCREASE
SCOPE CALIBRATION
VTVM
SCOPE CALIBRATING VOLTAGE
SCOPE POWER
LOCALIZER OUTPUT
COMPASS A.C.
50
100
150
200
MILLIVOLTS D C
INPUT VOLTAGE
VTVM POWER

FUNCTIONAL DESCRIPTION:

A portable field test unit designed to make preflight checks on the type E-11 Autopilot System. It is used in conjunction with the autopilot or a mockup to simulate ILS and compass signals. Tests performed by the unit include compass, glide slope, and localizer signal simulation, pitch, roll, and yaw rate gyro simulation, and quadrature signal measurement.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The tester contains a circuit used to calibrate a scope for various zero-signal adjustments on the autopilot. Circuitry consists of a resistor, potentiometer, DC millivoltmeter, and a nonpolarized, electrolytic capacitor. A power transformer provides the necessary voltage for a synchro, which simulates the compass signal. The transformer also provides voltage for a computer signal and a resistance bridge circuit. Pitch, roll, and yaw rate gyro simulation is provided by means of potentiometers. Interconnections are made between the tester and the autopilot system under test by means of electrical cables and plugs or receptacles. Controls on the front panel of the tester perform the following operations:

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-806015		
PROCUREM'T INFO.:			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4	
	- Electronics Test Equipment -M. Honeywell UG 153A-1		

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Betheada, Md. - Multilithed in U. S. A.

TESTER, FIELD, AUTOPILOT SYSTEM
Part No. UG 153A-1
(Minneapolis-Honeywell Regulator Company)

ELECTROMECHANICAL DESCRIPTION: (Continued)

1. Compass Signal Knob-adjusts the compass signal. Turning the knob clockwise and counterclockwise from the zero-degree mark simulates right and left heading deviation, respectively, of the aircraft.
2. Computer Signal Knob-adjusts computer signal. Turning the knob clockwise and counterclockwise introduces signals which are in-phase and out-of-phase, respectively, with the 400-cycle line voltage.
3. Roll Rate, Pitch Rate, Yaw Rate Knobs- introduce simulated gyro signals. Moving the knobs clockwise and counterclockwise from the center zero position simulates clockwise and counterclockwise gyro rotation, respectively.
4. DC Input Signal (Glide Slope-Localizer Signals)-adjusts simulated DC input signal for the glide slope and localizer couplers. Turning the knob clockwise increases the magnitude of the signal voltage.
5. DC Signal Switch-switches the simulated DC input signal to either the glide slope or the localizer coupler and selects the polarity of the signal.
6. Bucking Voltage Knob-facilitates the measurement of quadrature signal voltage in the autopilot system by means of a vacuum tube voltmeter indication.
7. Tip Jacks, Power Receptacle, Phasing Switch, and Scope Calibration Switch-provide adjustable scope calibrating voltages, both in-phase and out-of-phase, with line voltage.

Power Supply: 115 volts, AC, 400 cycles per second, single-phase.
Meter Range: 0 to 200 millivolts, DC.

MANUFACTURERS' OR CONTRACTORS' DATA:

Minneapolis-Honeywell Regulator Company, 2753 Fourth Avenue, Minneapolis 8, Minnesota; Contract No. AF 33(600)6314.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

Minneapolis-Honeywell Engineering Specification No. 4252A, 24 December 1954.

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
M. Honeywell UG 153A-1 - Electronics Test Equipment -						

TESTER, FIELD, AUTOPILOT SYSTEM
Part No. UG 153A-1
(Minneapolis-Honeywell Regulator Company)

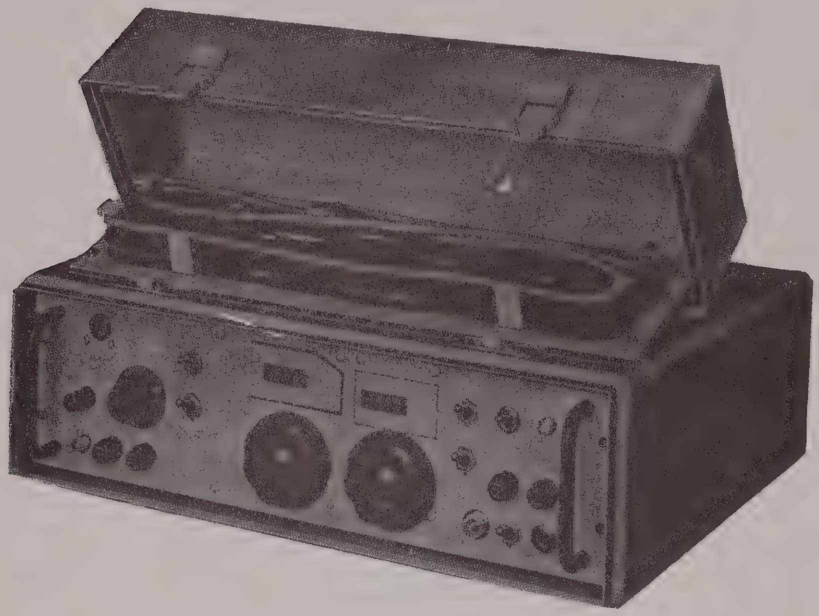
EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Tester, Field Autopilot System (Minneapolis-Honeywell UG 153A-1)	Aluminum	7CAC-806015	9	15-1/2	13-1/2	26-1/2

COMPARATOR, VOLTAGE AND PHASE

Part No. 11118-307

(North American Aviation, Incorporated)



FUNCTIONAL DESCRIPTION:

This is a portable test instrument designed to measure the signals in the MG-4 Interceptor Fixed Fire Control System. The comparator measures the in-phase and quadrature phase component ratios of the Fire Control System signals to a reference voltage.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The reference voltage is obtained from the equipment under test. The circuit consists of input and output amplifiers, a summing circuit, in-phase and quadrature voltage circuits, and a power supply. The in-phase and quadrature circuits receive the reference voltage from the system under test and provide calibrated in-phase and quadrature voltages for comparison with the signal being measured. The magnitude of these voltages are varied to null the signal voltage. A null is obtained when the two voltages, equal in magnitude and opposite in phase, are summed, thus cancelling each other. The output amplifier amplifies any error difference between these two voltages. The difference is then indicated on an external auxiliary oscilloscope or vacuum tube voltmeter.

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-210590		
PROCUREM'T INFO.:			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4	
	- Electronics Test Equipment -		NAA 11118-307

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

COMPARATOR, VOLTAGE AND PHASE
Part No. 11118-307
(North American Aviation, Incorporated)

ELECTROMECHANICAL DESCRIPTION: (Continued)

An internal power supply furnishes DC plate and bias voltages for the input and output amplifiers.

Power Supply: 115 volts, AC, 50 to 100 cycles per second, single-phase, 30 watts.

Reference Voltage: 115 volts, 400 cycles per second (from the unit under test).

MANUFACTURERS' OR CONTRACTORS' DATA:

North American Aviation, Incorporated, Downey, California; Contract AF33(600) 26479.

TUBE COMPLEMENT:

2 JAN-5691, 1 JAN-5693.

REFERENCE DATA AND LITERATURE:

TO 33D5-14-8-1 (Operation and Service Instructions).
TO 33D5-14-8-4 (Parts Breakdown Illustrated).

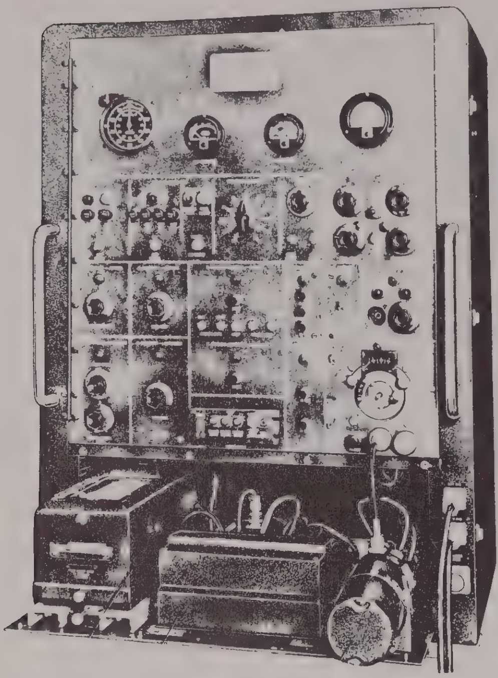
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Comparator, Voltage & Phase (NAA11118-307)		7CAC-210590	6-1/4	20	20	35
	Including:						
1	Case (NAA10780-307)	Aluminum					9
1	Input Probe (NAA10993-307)						
1	Cable (NAA11207-307)						
2	Cable (NAA11208-307)						

RANGE SERVO TEST SET AERO 1A



FUNCTIONAL DESCRIPTION:

A portable, special purpose instrument used to test the Radar Range Servo Aero 1A and Gunsight Controller Aero 2C. Measurements performed when the Gunsight Controller is in manual operation include sensitivity, throttle grip, stability and speed of response and dynamic accuracy. When the Radar Range Servo and the Gunsight Controller are in the automatic mode of operation the tester will evaluate the system for dynamic and static accuracy, stability and speed of response and sensitivity. The test set will also check the operation of critical components in the Gunsight Controller, such as the DC servo motor (slew time), the polarized relay and the response potentiometer.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Power Supply: 115 volts, AC, 60 cycles per second, 320 watts; 28 volts, DC, 120 watts.

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.			
PROCUREM'T INFO.:			
PROCUREM'T COG.: Navy		DESIGN COG.: Navy, BuAer	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.1	
- Electronics Test Equipment -			Aero 1A

RANGE SERVO TEST SET AERO 1A

ELECTROMECHANICAL DESCRIPTION: (Continued)

Sensitivity:
  Manual Mode: Nearest yard.
  Automatic Mode: Nearest 0.5 yard.
Simulated Throttle Grip: 200 to 800 yards.
Range Inputs: 25 or 50 yard steps.
Dynanic Accuracy:
  Manual Mode: ±1.0 yard.
  Automatic Mode: ±0.5 yard.
Static Accuracy: ±0.5%.
Slew Time Accuracy: ±0.01 seconds.
Response Potentiometer Accuracy: ±0.5%.

MANUFACTURERS' OR CONTRACTORS' DATA:

Dolecam Division, Minneapolis-Honeywell Regulator Company, Newton, Massachusetts.

TUBE COMPLEMENT:

1 OA2, 1 2D21, 3 5U4G, 1 6AK5, 1 6AL5, 3 6AQ5, 1 6BA6, 2 6L6, 5 12AU7, 11 12AX7, 1 5651, 3 6080.

REFERENCE DATA AND LITERATURE:

NavAer 17-15FA-501 (Operation and Service Instructions).

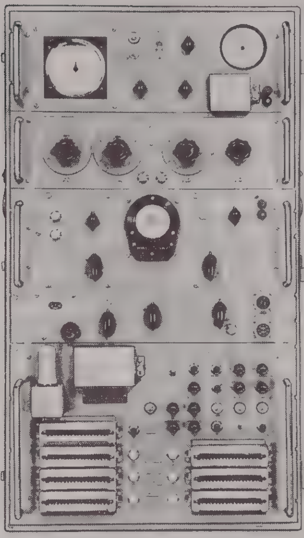
EQUIPMENT SUPPLIED:

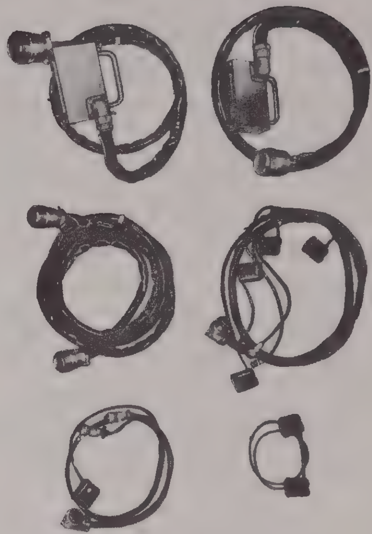
Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Range Servo Test Set Aero 1A	metal		41	32-3/4	29	

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
	Range Servo Test Set, Aero 1A					

SERVO TEST SET AN/GPM-8





FUNCTIONAL DESCRIPTION:

A portable, special purpose test set used for depot testing Servo Amplifier AM-118/APA-44 which is a component of Ground Position Indicator AN/APA-44. This test set provides facilities for the following tests and adjustments of components of the servo amplifier: continuity, alignment, and output accuracy of synchros and precision potentiometers; timing of wind servo; operation of relays.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The basic servo test set is subdivided into seven functional areas: (1) servo jig which provides a means of mounting any one of the plug-in components of the servo amplifier and interconnecting it with the servo test set; (2) distribution panel which interconnects the servo jig with the circuit necessary for energizing and testing the components of the servo amplifier; (3) motor-

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.	Alternate Standard		
STOCK NOS.	7CAC-801319-58		
PROCUREM'T INFO.:			
PROCUREM'T COG.: USAF		DESIGN COG.: USAF, Arm.	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.1	
- Electronics Test Equipment -			AN/GPM-8

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

SERVO TEST SET AN/GPM-8

ELECTROMECHANICAL DESCRIPTION: (Continued) varistor-relay panel; (4) synchro panel; (5) potentiometer panel; (6) wind tracking simulator which measures the time required for the AC brush of the wind potentiometer to rotate through a given arc when various simulated tracking inputs are applied to the wind servo under test; (7) range-offset panel which is a high precision attenuator that supplies 350-cycle input signals received from the distribution panel to the two driver amplifiers mounted in the wind tracking simulator panel.

Power Supply: 115 ±5 volts, AC, 400 ±40 cycles per second, single phase, 2000 volt-amperes; 115 ±5 volts, AC, 60 ±0.5 cycles per second, single phase, 2000 volt-amperes; 26 to 28 volts, DC, 5 amperes.

Power Output: 6.3 volts, AC, 400 cycles per second, single phase, 5 amperes; 2.8 volts, AC, 100 cycles per second, single phase, 0.1 milliampere.

Temperature Range: 0°C. (32°F.) to +55°C. (131°F.), operational; -65°C. (-85°F.) to +85°C. (185°F.), storage.

Relative Humidity: 0 to 95% operational and storage.

Altitude Range: Up to 10,000 feet, operational.

MANUFACTURERS' OR CONTRACTORS' DATA:

Western Electric Company, 120 Broadway, New York, New York; USAF Contract AF 33(038)7414; Western Electric Spec. GS-15326; Drawing Index BB-745280; Approximate Cost per Unit, $14,500.00.

TUBE COMPLEMENT:

2 JAN-6J6, 5 JAN-6AK5, 1 JAN-6SU7GTY, 1 JAN-2D21, 1 JAN-6AL5, 4 JAN-6C4.

REFERENCE DATA AND LITERATURE:

TO 33D5-2-2-1 (Operation and Maintenance Instructions).

SHIPPING DATA:

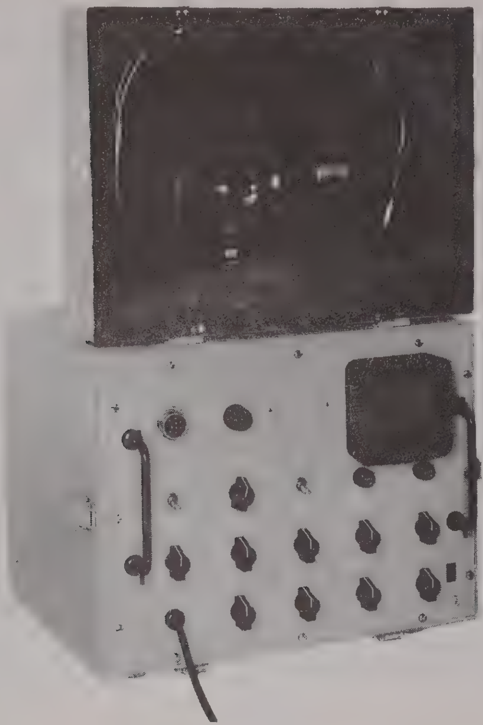
No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Over-all Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

SERVO TEST SET AN/GPM-8

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Over-all Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Servo Test Set AN/GPM-8 (GS-15326)	Aluminum	7CAC-801319-58				
	Including:						
1	Servo Test Set Panel GS-15039			36	18	20	250
1	Servo Test Fixture GS-15107			11-1/4	11-3/4	26	
1	Servo Power Cable BL-711588			48 long			
1	Servo Test Cable BL-711589			60 long			
1	Test Set Power Cable BR-711574			72 long			
1	Cable (to aux. Oscilloscope) BL-711590			60 long			
1	Cable (to aux. Voltmeter) BL-711587			40 long			
1	Cable (to aux. Synchro Test Set) BL-711591			50 long			
1	Motor Adjustment Tool G-207173			7/8 long			

SERVO TEST SET AN/TPM-8



FUNCTIONAL DESCRIPTION:

A portable general purpose test set used to check and align the transient response and static error of a servo mechanism loop. The equipment provides means for driving the loop by introducing a forcing voltage into the servo. The response is displayed on a built-in three-inch cathode ray tube.

RELATIONSHIP TO OTHER EQUIPMENT:

AN/TPM-8 is a militarized version of Industrial Control Company Model 101A and the equivalent of type 103A.

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The test set drives the servo under test by means of the forcing voltage. The transient response and static error are compared with those specified for the particular servo system on the scope mask in order to determine if the system is performing properly. The set is capable of testing 60 cycle, 400 cycle, and direct current servos.

Power Supply: 116 volts, 50 to 1000 cycles per second, single-phase.

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.			
PROCUREM'T INFO.:	Spec. SCL-2757, dated 5 February 1953		
PROCUREM'T COG.:	USA	DESIGN COG.:	USA, SCEL, ESL
F.I.I.N.:		FUNCTIONAL CLASS. NO.:	10.41.
	- Electronics Test Equipment -		AN/TPM-8

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U.S.A.

ELECTROMECHANICAL DESCRIPTION: (Continued)

Ranges: 3 repetition ranges with periods of 0.2, 1, and 5 seconds.

Type of Modulation: DC: Square wave.
60 or 400 cycle: Suppressed carrier wave modulation.

Operable Temperature Range: -4° F. (-20° C.) to +125° F. (+52° C.).

MANUFACTURERS' OR CONTRACTORS' DATA:

Industrial Control Company, Wyandauch, Long Island, New York; Contract No. DA 36-039-sc-46532, 8 June 1953.

TUBE COMPLEMENT:

3 JAN-5814A, 1 JAN-6201, 1 JAN-5727, 1 JAN-5751, 1 JAN-6202, 1 JAN-2X2A, 1 JAN-3JP7.

REFERENCE DATA AND LITERATURE:

Industrial Control Company Data Sheet 101A.

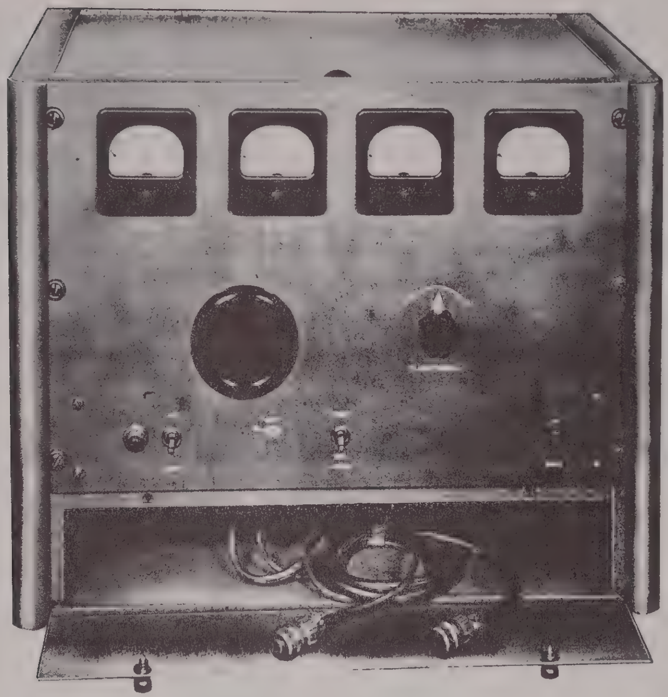
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Servo Test Set AN/TPM-8	27	36.	36	36	40

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Servo Test Set AN/TPM-8	Aluminum		10	14	16	25
1	Special Purpose Cable Assembly						

TEST PANEL, SERVO MOTOR ASSEMBLY
Part No. LT-3080
(Lear, Incorporated)



FUNCTIONAL DESCRIPTION:

A portable, special purpose equipment designed to check the operational performance of Servo Motor Assembly Lear 99326. The unit furnishes the necessary potentials and indicating devices for tests which include low voltage starting, static and dynamic drag, output torque, and motor current.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The test panel consists essentially of a servo motor voltage control circuit and a regulated DC power supply. The servo motor voltage, controlled by a fixed surge resistor which is shorted by the switch when it is in the RUN position, is varied by a potentiometer. A voltmeter and an ammeter are provided for monitoring the servo motor voltage and current. The voltage is controlled by a dual potentiometer and monitored by two current meters that

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.		Standard	
STOCK NOS.		(ASO)R88LA-LT-3080	
PROCUREM'T INFO.:			
PROCUREM'T COG.: Navy		DESIGN COG.: Commercial	
F.I.I.N.: 6625-696-2426		FUNCTIONAL CLASS. NO.: 10.4.1	
	- Electronics Test Equipment -		Lear LT-3080

TEST PANEL, SERVO MOTOR ASSEMBLY
Part No. LT-3080
(Lear, Incorporated)

ELECTROMECHANICAL DESCRIPTION: (Continued)

indicate servo motor clutch current for right and left operation. A lamp is provided to indicate a short or ground in the servo motor clutch equipment under test.

Power Supply: 110 to 120 volts, AC, 56 to 64 cycles per second; 27 to 28 volts DC.

Meter Ranges:

Direct Voltage: 0 to 50 volts.
Direct Current: 0 to 15 amps.
Direct Current (Left): 0 to 15 milliamps.
Direct Current (Right): 0 to 15 milliamps.

Meter Accuracies: ±2%.

MANUFACTURERS' OR CONTRACTORS' DATA:

Lear, Incorporated, 110 Ionia N. W., Grand Rapids 2, Michigan; Contract No. NOas 56-797f; Approximate Cost per Unit, $1,007.98.

TUBE COMPLEMENT:

1 5Y3GT, 1 OA3, 1 OC3, 1 6BX7GT.

REFERENCE DATA AND LITERATURE:

NavAer 17-15KD-504 (Handbook of Operation and Service Instructions with Illustrated Parts Breakdown).

SHIPPING DATA:

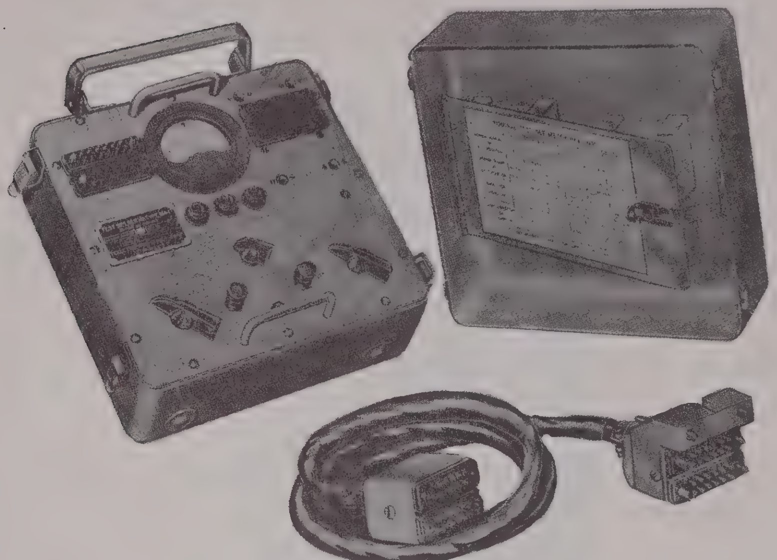
No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Test Panel, Servo Motor Assembly, Lear LT-3080	2.9	8	8	5-1/2	69

TEST PANEL, SERVO MOTOR ASSEMBLY
PART NO. LT-3080
(Lear, Incorporated)

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Test Panel, Servo Motor Assembly Lear LT-3080	metal					
1	Cabinet LT-3080-1						
1	Fixture, Servo Holding LT-3080-02						

TEST SET, RANGE SERVO, MA-1



FUNCTIONAL DESCRIPTION:

A portable field-maintenance type test set designed to provide a convenient method of testing and troubleshooting Type A series Range Servos. It provides a means of measuring the various operating voltages of the unit under test, and localizing trouble within a radar gun-sight system.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The test set is housed in a two-piece metal case, the top half of which is lifted off to expose the control panel. This panel contains two male and two female connectors, three indicator lamps, two selector switches, a potentiometer control, two momentary contact switches, and a voltmeter. A multiconductor adapter test cable assembly connects the unit under test to the test set and serves to supply operating power to the test set, as well as to carry signals used in testing. A meter reading chart is secured to the removable top cover of the test set and is used to indicate the proper voltage ranges of the unit under test. In operation, the voltmeter is a standard DC instrument. A standard meter rectifier is included in the circuit to rectify the AC voltages to be measured by the DC voltmeter.

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.	Standard		
STOCK NOS.	7CAC-801319-29		
PROCUREM'T INFO.:			
PROCUREM'T COG.: USAF		DESIGN COG.: USAF, WADC, WGL	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.1	
- Electronics Test Equipment -			MA-1

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TEST SET, RANGE SERVO, MA-1

ELECTROMECHANICAL DESCRIPTION: (Continued)
Power Supply: Power furnished by unit under test.
Meter Ranges: 0 to 50 and 0 to 500 volts.
Meter Sensitivity: DC Range: 2,000 ohms-per-volt.
AC Range: 1,000 ohms-per-volt.

MANUFACTURERS' OR CONTRACTORS' DATA:

Telectro Industries Corporation, 35-16 37th Street, Long Island City, New York; Approximate Cost per Unit, $178.00.

TUBE COMPLEMENT:

1 JAN-OB2.

REFERENCE DATA AND LITERATURE:

TO 33D5-9-5-21 (Operation Instructions).

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

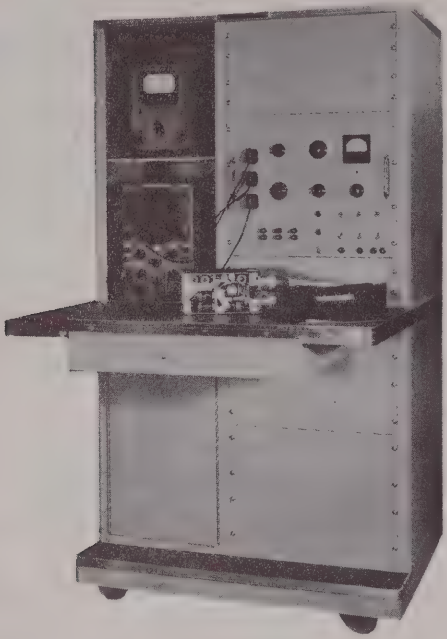
Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Test Set, Range Servo MA-1	Aluminum	7CAC-801319-29	7-1/2	10-1/4	10	
	Including:						
1	Adapter Test Cable Assembly						
						Total:	16

61

TEST SET, ROLL SERVO

Part No. 10949

(Cal-Tronics Corporation)



FUNCTIONAL DESCRIPTION:

A transportable special purpose test set used to provide a complete functional test, alignment, and wire continuity check of the roll servo unit which is a component of the MG-4 Fire Control System.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The test set circuitry consists of a regulated 300 volts DC power supply, a motor driven synchro control transformer, an eleven-position continuity selector switch, and an eleven-position test selector switch. The continuity selector switch permits the testing of interunit jumpers. The test selector switch programs specified tests, selects loads for phase and voltage measurements, and also selects the sense and magnitude of the servo positioning control signal.

The functional test of the servo amplifier motor and gear box combination is accomplished by applying a varying position control signal to the input of the servo amplifier, and observing the amplitude of servo error signal and the tracking of the servo shaft with respect to the control signal. The resolvers are tested and aligned by inserting a reference servo positioning signal of preset magnitude and

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.			

PROCUREM'T INFO.:

PROCUREM'T COG.: DESIGN COG.: Commercial

F.I.I.N.: FUNCTIONAL CLASS. NO.: 10.4.1

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TEST SET, ROLL SERVO
Part No. 10949
(Cal-Tronics Corporation)

ELECTROMECHANICAL DESCRIPTION: (Continued)

sense at the servo amplifier input. The servo shaft then rotates to a reference position established by the signal and the resolvers are indexed manually. The test set measures the phases and amplitudes of the resolver output and servo error signals by means of an oscilloscope and vacuum tube voltmeter.

Power Supply: 115 volts, AC, 60 cycles per second, single-phase, 3.0 amperes. 115 volts, AC, 400 cycles per second, single-phase, 0.5 ampere.

Voltage Output: 300 volts, DC, 28 volts, AC, 400 cycles per second, single-phase.

MANUFACTURERS' OR CONTRACTORS' DATA:

Cal-Tronics Corporation, 11307 Hindry Avenue, Los Angeles 45, California; Contract AF 33(600)26479; Approximate Cost per Unit, $5,000.

TUBE COMPLEMENT:

1 JAN-6X4, 1 JAN-5687, 1 JAN-OA2.

REFERENCE DATA AND LITERATURE:

Instruction and Operating Manual, Roll Servo Test Set P/N Cal-Tronics 10949.

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Test Set, Roll Servo (Cal-tronics 10949)			67	37	44	
	Including:						
1	Test Panel Cal-Tronics 10726						
1	Power Outlet Panel (Cal-tronics 10734)						
1	Oscilloscope DuMont 304A						

(Continued)

TEST SET, ROLL SERVO
Part No. 10949
(Cal-Tronics Corporation)

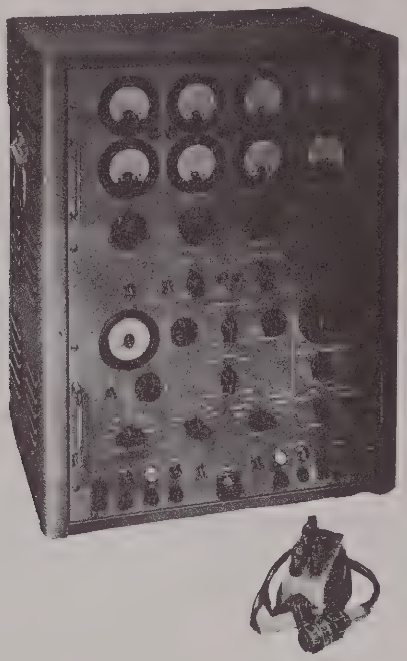
EQUIPMENT SUPPLIED: (Continued)

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Vacuum Tube Voltmeter Hewlett-Packard 400D						
1	Set Cables to Unit Under Test						
1	Set Auxiliary Cables						

CONTROL, SERVO TEST

Part No. 13618-3-A

(Eclipse-Pioneer Division of Bendix Aviation Corporation)



FUNCTIONAL DESCRIPTION:

A general purpose equipment designed to provide cable connections and power input to servo units under test and to measure the input and output characteristics of the servos. The equipment is used to test Eclipse-Pioneer Servo 12359, 12360, 12361, 12362, 12363, 12364, 15609, 15621, 15622 and 15623 of Autopilot System Pl, Fl, F2; Eclipse-Pioneer 15601, 15602, 15603, 15607, 15611, 15613, 15620, 15621, 15622, 15627, 15633 and 15636 of Autopilot System PB10 and PB10A; and Eclipse-Pioneer Servo 15637 and 15639 of Autopilot System PB20.

RELATIONSHIP TO OTHER EQUIPMENT:

Replaces Eclipse-Pioneer Servo Test Control 13618-2-B, 13618-2-A and 13618-1-A.

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The servo test control unit is essentially a circuit comprised of transformers, servoamplifiers, standard synchros, phasing networks, ammeters, voltmeters, switches and binding posts interconnected to facilitate the

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.		Standard	
STOCK NOS.		(ASO)R88T0950-437-001	
PROCUREM'T INFO.: Drawing No. 13618-3-A			
PROCUREM'T COG.: Navy		DESIGN COG.: Commercial	
F.I.I.N.: 6625-335-6142		FUNCTIONAL CLASS. NO.: 10.4.1	
- Electronics Test Equipment -		E.-P. 13618-3-A	

CONTROL, SERVO TEST

Part No. 13618-3-A

(Eclipse-Pioneer Division of Bendix Aviation Corporation)

ELECTROMECHANICAL DESCRIPTION: (Continued)

testing of servo units. Components common to more than one test are connected for a specific test by positioning the selector switches. The equipment provides an insulation-breakdown test comprised of a single-range ohmmeter. A motor-test circuit provides fixed- and variable-phase power and measures the power and voltage supplied to the servo under test. A Scott T transformer arrangement converts three-phase power into two-phase quadrature power. Thus, the motor variable-phase circuit displaces the 400 cycle per second input voltage 90 degrees from the fixed-phase circuit input voltage which is required for motor operation. A rate generator and synchro output test circuit provides a capability for checking the voltage, phase, and waveform of the equipment. The circuit includes a source of adjustable-phase voltage, a source of phase-reference voltage, and provisions for connecting the rate generator output to an oscilloscope and vacuum-tube voltmeter. An amplifier circuit permits testing a servo unit in a complete system, using the Phase Angle Indicator-Control Autosyn connected as a control synchro to simulate the flight signal control. The equipment is connected to the servo unit under test through an AN panel connector by four test cables supplied with the test set.

Power Supply: 115 ±5 volts, AC, 400 ±20 cycles per second, three phase, 5 amps per phase; one 1.5 volt, DC, battery, BA-30.

Power Output:

Clutch Control Circuit: 0 to 30 volts, DC.

Rate Generator and Synchro Excitation Circuit: 0 to 30 volts, AC, 400 cycles per second.

Meter Ranges:

Direct Current: 0 to 500 milliamps.

Direct Current: 0 to 0.5, 1.5 amps.

Direct Voltage: 0 to 30 volts.

MANUFACTURERS' OR CONTRACTORS' DATA:

Eclipse-Pioneer Division, Bendix Aviation Corporation, 43 Williams Avenue, Teterboro, New Jersey; Contract No. N383s-45442A; Approximate Cost per Unit, $4,136.00.

CONTRL, SERVO TEST
Part No. 13618-3-A
(Eclipse-Pioneer Division of Bendix Aviation Corporation)

TUBE COMPLEMENT:

1 6SL7, 2 6V6GT, 1 6X5-GT.

REFERENCE DATA AND LITERATURE:

NavAer 17-15C-520 (Operation, Service, and Overhaul Instructions).

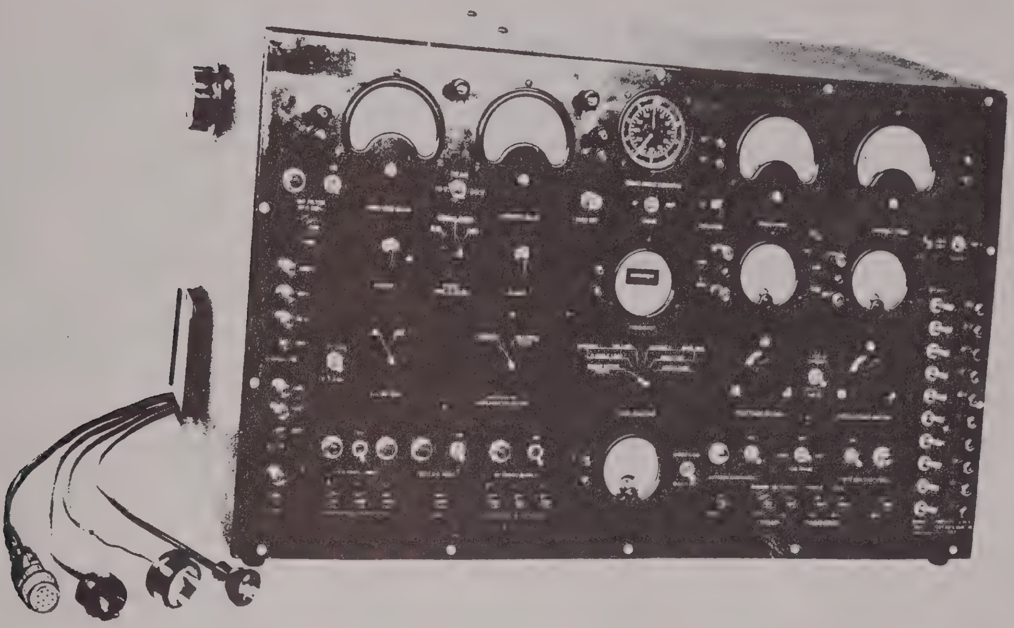
EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Control, Servo Test, Eclipse-Pioneer 13618-3-A	metal		27-1/2	28	23-1/2	79
1	Test Cable Eclipse-Pioneer QB74618-1						
1	Test Cable Eclipse-Pioneer QB74964-1						
1	Test Cable Eclipse-Pioneer QB74976-1						
1	Test Cable Eclipse-Pioneer QB76754-1						

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
	Control, Servo Test Eclipse-Pioneer 13618-3-A					

TEST CONTROL, SERVO
Part No. 13681-1-A
(Eclipse-Pioneer Division of Bendix Aviation Corporation)



FUNCTIONAL DESCRIPTION:

A special purpose equipment designed to test the rudder, aileron and elevator servos of Eclipse-Pioneer Autopilot P-3. The test control provides signals for excitation of the servos during tests. Test results are indicated by observing the panel meters. Servo response is measured by the use of an external oscilloscope and vacuum-tube voltmeter.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The servo test control is essentially a switching circuit into which the following are connected: a Test Autosyn Eclipse-Pioneer 13658-52-A, zero set and amplitude potentiometers, a band-pass filter Eclipse-Pioneer QB-72299-1, Scott transformers, powerstats, servoamplifiers used in servo hunt tests, a B power supply providing filtered and regulated high voltage, DC, to the servoamplifiers, and magnetic amplifiers for use in servo hunt tests. The

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.		Standard	
STOCK NOS.		(ASO)R88T0950-045-000	

PROCUREM'T INFO.: Drawing No. 13681-1-A

PROCUREM'T COG.: Navy DESIGN COG.: Commercial

F.I.I.N.: FUNCTIONAL CLASS. NO.: 10.4.1

TEST CONTROL, SERVO

Part No. 13681-1-A

(Eclipse-Pioneer Division of Bendix Aviation Corporation)

ELECTROMECHANICAL DESCRIPTION: (Continued)

circuit is tapped with meters, switches, and test jacks to monitor various operations and perform point-to-point tests. The test control unit's variable-phase and fixed-phase outputs are monitored by panel meters and are varied in amplitude by autotransformers and selector switches. Three separate panel meters may be selected to read the variable-phase voltage according to the function for which it is intended. The three meters indicate the rate generator voltage, Autosyn voltage and the variable-phase voltage. Phasing tests are accomplished by a phase angle indicator mounted on the front panel. The phase angle indicator employs dual coaxial pointers and separate scales in order to read to one-tenth of a degree. Each panel meter is provided with external binding posts enabling the meters to be used to measure other circuits. Ten individual switches, located on the panel, permit any circuit of the equipment under test to be connected to the test control servo.

Power Supply: 115 volts, AC, 400 cycles per second, three-phase; 28 volts, DC.

Variable-Phase Output: 0 to 208 volts, AC, ±90 degrees phase shift relative to fixed-phase output.

Fixed-Phase Voltage: 0 to 208 volts, AC, variable.

Meter Range:

- Rate Generator: 0 to 10 volts, AC, nonlinear scale.
- Autosyn: 0 to 30 volts, AC, nonlinear scale.
- Variable Phase: 0 to 250 volts, AC, nonlinear scale.
- Fixed Phase: 0 to 250 volts, AC, nonlinear scale.
- Voltmeter: 0 to 30 and 0 to 300 volts, DC.
- Frequency: 400 cycles per second center scale, 9-reed vibrating type.
- Phase Angle Indicator: 0 to 360 degrees ±15 minutes, calibrated at 28 degrees and 26 volts, AC (Voltage Range 26 to 208 volts, AC).

MANUFACTURERS' OR CONTRACTORS' DATA:

Eclipse-Pioneer Division, Bendix Aviation Corporation, 43 Williams Avenue, Teterboro, New Jersey; Approximate Cost per Unit, $2,046.00.

TUBE COMPLEMENT:

REFERENCE DATA AND LITERATURE:

1-13681 (T and TE Publication)

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
	Test Control, Servo Eclipse-Pioneer 13681-1-A					

TEST CONTROL, SERVO

Part No. 13681-1-A

(Eclipse-Pioneer Division of Bendix Aviation Corporation)

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Test Control, Servo Eclipse-Pioneer 13681-1-A	metal		21	35	12	100

FIXTURE, Y-4 TROUBLESHOOTING
TSY-7111
(General Mills, Inc.)

FUNCTIONAL DESCRIPTION:

A portable unit which is used for isolating malfunctions in the servo loops of the Y-4 Horizontal Periscope Bombsight and the B 1 Coordinate Converter. Once the cables of the fixture are attached to the unit to be tested the controls on the fixture may be set to provide a means of isolating certain portions of the unit for specific tests. No change in cable arrangement is needed to conduct other phases of testing.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The fixture is housed in a metal tool-box type-cabinet. The top cover is raised to provide access to the operating controls. At the time the cover is raised, the front panel of the fixture may be dropped to permit cabling equipment to be removed from the storage compartment. All cables are permanently attached to the fixture. Five knobs on the control panel marked "Pitch," "Roll," "Azimuth," "Polar," and "Declination," comprise the major controls. All knobs are marked with a "Null" position. The first three knobs are marked

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-294305		
PROCUREM'T INFO.:			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.1	
	- Electronics Test Equipment -General Mills TSY-7111		

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

FIXTURE, Y-4 TROUBLESHOOTING
TSY-7111
(General Mills, Inc.)

ELECTROMECHANICAL DESCRIPTION: (Continued)

with a "Zero" position; the last two with a "Periscope Zero" and a "Zero Transmitter" position. By setting the knobs on various combinations of these positions, certain of the components of the unit under test are removed from the circuit and voltages are supplied by the fixture. By this method of isolating these components, the operational suitability of each may be determined. Terminal jacks provide a means of obtaining voltage readings by the use of an auxiliary vacuum tube voltmeter.

Power Supply: 115 volts, AC, 400 cycles per second, supplied by the unit under test.

MANUFACTURERS' OR CONTRACTORS' DATA:

General Mills Inc., Mechanical Division, 400 Second Avenue, South Minneapolis, Minnesota, Contract No. AF 33(038)14786, July 1950, Approximate Cost per Unit, $1065.00.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 33D5-9-29-1 (Operations, Service, and Repair Instructions).
TO 33D5-9-29-4 (Parts Breakdown).

SHIPPING DATA:

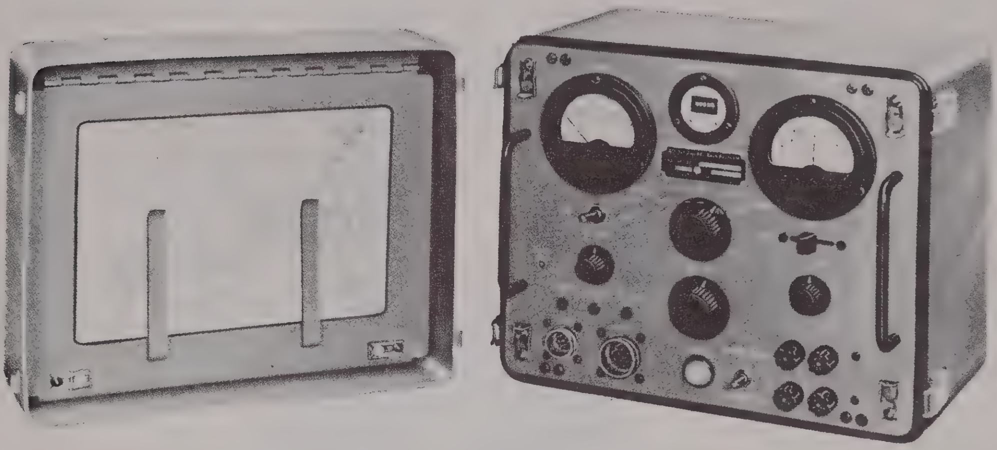
No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Fixture, Y-4 Trouble-shooting (General Mills TSY-7111)	3.33	20	24	12	56

FIXTURE, Y-4 TROUBLESHOOTING
TSY-7111
(General Mills, Inc.)

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	**Name and Nomenclature**	**Case Mat'l**	**Stock Numbers (USAF) (Navy) (Army)**	**Overall Dimensions (inches)**			**Weight (Lbs.)**
				H	**W**	**D**	
1	Fixture, Y-4 Troubleshooting (General Mills TSY-7111)	Steel	7CAC-294305	15-1/2	20	8-1/2	41

TEST SET, RADAR TRACKING LOOP
Part No. 486196-110
(Hughes Aircraft Company)



FUNCTIONAL DESCRIPTION:

A portable instrument which is used to generate testing signals and provide measuring and indicating devices to test and adjust the angular tracking control loops of a number of Fire Control Systems. The test set may also be used to adjust the space-stabilization loop gain or the antenna spin reference generator.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The instrument is housed in a single case and consists of three functionally distinct pieces of electronic equipment, as follows: (1) a low-frequency signal generator, (2) a specifically designed vacuum tube voltmeter, and (3) an AC/DC voltmeter. The low-frequency signal is obtained by driving a synchro transmitter by means of a geared synchronous motor. The synchro rotor is excited by a 400-cycle per second voltage, and a signal is induced in the stator winding. This signal is modulated in frequency at the speed of the synchro shaft rotation. Selectable frequencies of 1/8, 1/4, and 1/2 cycle per second may be generated. The primary measuring instrument of the test set is the DC vacuum tube voltmeter which is normally centered at zero, providing accurate measurement of AC peak voltages up to 0.5 cycle per second by the use of a specially damped meter movement. The AC/DC voltmeter provides a full scale measure-

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-801319-2198		
PROCUREM'T INFO.:			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.1	
	- Electronics Test Equipment -		Hughes 486196-110

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U.S.A

TEST SET, RADAR TRACKING LOOP
Part No. 486196-110
(Hughes Aircraft Company)

ELECTROMECHANICAL DESCRIPTION: (Continued)

ment range of input voltages to 10 volts, DC, and 100 volts, AC, by setting a switch on the front panel in the desired testing position. Pin terminal jacks, also on the front panel, provide connections for input test leads.

Power Supply: 115 volts, AC, 400 ±20 cycles per second, single-phase. A transformer in the test set provides DC voltage.

Meter Ranges: 0 to 10 volts, DC.
0 to 100 volts, AC.

Frequency Meter Range: 380 to 420 cycles per second.

MANUFACTURERS' OR CONTRACTORS' DATA:

Hughes Aircraft Company; Culver City, California; Contract Numbers AF33(600) 17618, -27013; Approximate Costs per Unit, $709.00, $697.00 (14 September 1954).

TUBE COMPLEMENT:

1 type 5751.

REFERENCE DATA AND LITERATURE:

TO 33D5-8-5-1 (Operation and Service Instructions).
TO 33D5-8-5-4 (Parts Breakdown).

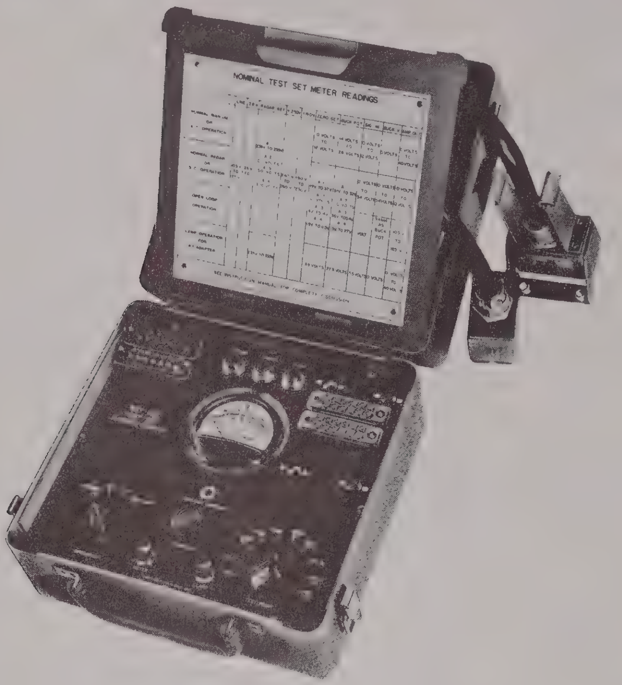
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Test Set, Radar Tracking Loop (Hughes 486196-110)	Aluminum		15	13-5/16	10-13/16	20
	Including:						
1	Power Cable			120 long			
2	Voltmeter Test Lead			120 long			
1	Interconnection Test Cable			120 long			
1	Test Set Case						

TEST SET
TYPE RST 104
(Servomechanisms, Incorporated)



FUNCTIONAL DESCRIPTION:

A portable, special purpose unit which provides a means for rapidly troubleshooting and testing the operation of range servos. By using it to measure the various operating voltages within the range servo, malfunctions can be quickly isolated to the radar, the gunsight, or to a particular plug-in component of the range servo. Indication is on a 20,000 ohms per volt, DC, voltmeter provided in the test set. A standard meter rectifier is provided to rectify the AC voltages to be measured. When the test set is used in conjunction with the meter rectifier, an impedance of 1000 ohms per volt is provided. The points at which the measurements are to be taken are connected to the test set, either through the proper multiplier resistors for DC voltages or through the rectifier for AC voltages, by a test point switch. This test set is used in organizational, field, and depot testing.

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-801395 7CAC-801319-6458		
PROCUREM'T INFO.:			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.1	
	- Electronics Test Equipment -		Servo. RST 104

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TEST SET
TYPE RST 104
(Servomechanisms, Incorporated)

RELATIONSHIP TO OTHER EQUIPMENT:

This test set is used in testing all Type A Series Range Servos. It is used in connection with testing the E-1 Fire Control System.

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: Range servo input is provided by the applicable radar set, the manual range control unit in the aircraft, or by simulated signals controlled from the test set. Simulated signals would apply during bench troubleshooting procedures. An "OPERATION" switch on the test set arranges its circuits to provide the internal simulated signals and feed internal and external input to the range servo and to the test set meter. The test set contains the following: a "COMMAND" potentiometer that provides substitute range signals for either manual or radar operation, an "AUXILIARY COMMAND" jack through which substitute DC signals can be fed to the test set, a "CLAMP" switch which supplies a clamp voltage for the range servo to simulate conditions when the range servo is connected to a radar set while the radar is not tracking a target. Relays automatically provide the correct circuit connections for the meter depending on whether the range servo has a radar, manual, or clamp voltage applied. The test points are connected to the meter by a switch, through the relays, through the multiplier resistors used for providing the proper meter range, and through the meter rectifier for measuring AC voltages. A "METER" push-button switch is provided to prevent damage to the meter. It is depressed only when reading test voltages.

Power Supply: None, except that on bench testing the range servo, a DC voltage consistent with the applicable radar reference voltage must be applied to the range servo radar reference voltage terminal.

Voltage Ranges for Test Points:	DC	AC
	0 to 50 volts	0 to 60 volts
	0 to 500 volts	0 to 150 volts

MANUFACTURERS' OR CONTRACTORS' DATA:

Servomechanisms, Inc., Westbury, New York; USAF Contract No. AF 33(038)-25866, dated 18 May 1951; Approximate Cost per Unit, $416.00.

TUBE COMPLEMENT:

1 RETMA-OB2 (Voltage Regulator Tube).

REFERENCE DATA AND LITERATURE:

Air Force Technical Order No. AN 17-15K-15 (Operating and Service Instructions - Type RST104).

Air Force Technical Order No. AN 17-15K-16 (Parts Catalog - Type RST 104).

TEST SET
TYPE RST 104
(Servomechanisms, Incorporated)

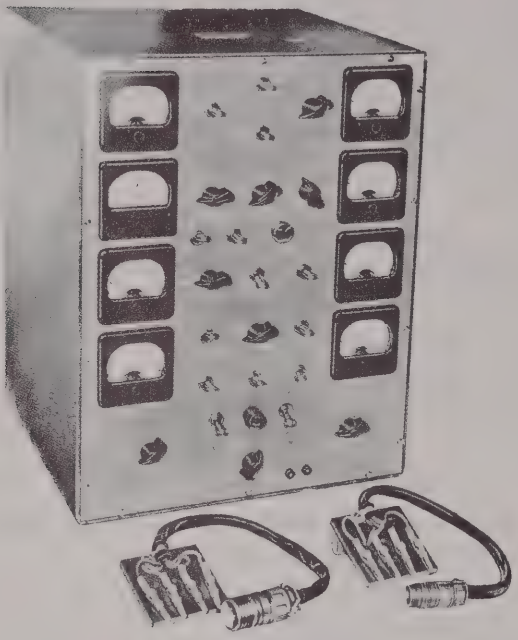
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Test Set RST 104 Including:	Aluminum	7CAC-801319-6458 7CAC-801395	7-3/4	11-3/8	10-15/16	16.0
1	Connecting Cable						

SERVO SYSTEM ANALYZER
Part No. T-100844
(Sperry Gyroscope Company)



FUNCTIONAL DESCRIPTION:

A portable maintenance test equipment used in calibrating and testing components of automatic pilots. The analyzer indicates current and voltage readings in various portions of the unit under test. These readings are dependent on the dial and switch settings of the analyzer and on conditions of loading applied to the unit under test. In addition, this equipment may be used for the run-in of new motor brushes.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The circuitry consists of a power supply and three channels for testing the trim-tab-servo, servos, or the servo-control of the automatic pilot.

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-043320		
PROCUREM'T INFO.:			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.1	
	- Electronics Test Equipment - Sperry Part No. T-100844		

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

SERVO SYSTEM ANALYZER
Part No. T-100844
(Sperry Gyroscope Company)

ELECTROMECHANICAL DESCRIPTION: (Continued)

Trim-Tab-Servo Channel: This channel supplies voltage to the trim-tab-servo under test. A toggle switch in the trim-tab field supply voltage permits changing the polarity of the voltage, and therefore the direction of rotation of the servo. A meter indicates both field and armature current.

Servo Channel: This channel supplies voltages to the servo, permitting field and armature current to be read on a meter. Synchro excitation and output voltages may also be read.

Servo-Control Channel: Voltages are applied to the servo control motor and currents are indicated on a meter. Dummy loads may be applied to the generators and load currents obtained.

Power Supply: 115 volts, AC, 400 cycles per second, approximately 2 watts.
115 volts, AC, 60 cycles per second, approximately 50 watts.
27 volts, DC, approximately 1100 watts.

Meters:
Two DC Ammeters, 0 to 1 ampere scale.
One DC Ammeter, 2.5 to 0 to 2.5 and 10 to 0 to 10 ampere scales.
One DC Ammeter, 0 to 50 ampere scale.
One DC Milliammeter, 0 to 100 milliampere scale.
One DC Voltmeter, 0 to 50 volt scale.
One DC Voltmeter, 0 to 15 volt scale.
One DC Voltmeter, 0 to 150 volt scale.

MANUFACTURERS' OR CONTRACTORS' DATA:

Sperry Gyroscope Company, Division of the Sperry Corporation, Great Neck, Long Island, New York.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE;

TO 33D3-8-7-1 (Operation and Service Instructions).
TO 33D3-8-7-4 (Parts Catalog).

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Over-all Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
Sperry Part No. T-100844 - Electronics Test Equipment -						

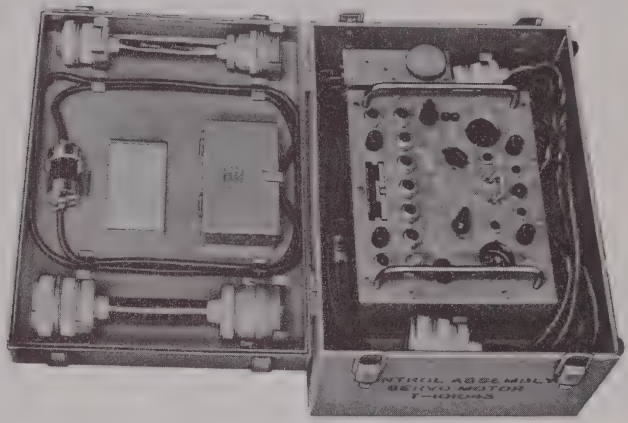
SERVO SYSTEM ANALYZER
Part No. T-100844
(Sperry Gyroscope Company)

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Over-all Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Servo System Analyzer Sperry Part No. T-100844		7CAC-043320	19	14	13	50
1	Cable Assembly Sperry Part No. T-100844 -129						
1	Cable Assembly Sperry Part No. T-100844 -130						

- Electronics Test Equipment -Sperry Part No. T-100844

SERVO MOTOR CONTROL ASSEMBLY
Part No. T-101043
(Sperry Gyroscope Company)



FUNCTIONAL DESCRIPTION:

A portable general purpose test instrument designed to permit the operation of various control servo motors without manually turning the servos and without operating the complete computer system. The control assembly also allows several functional checks of system components without operating the amplifiers and system power supplies. This is accomplished by supplying excitation voltages directly from the control assembly to the circuits under test.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: A selenium rectifier and voltage doubler circuit furnish +300 volts, DC, to the servo motors under test. An external source of +27 volts, DC, is also supplied to the armatures of the servo motors by the control assembly. A potentiometer, connected across the field windings of the servo motor being operated, controls the speed and direction of rotation by unbalancing the motor fields. When the potentiometer control is turned to its central position, the fields are balanced and the motor does not rotate. For a check of the memory point operation, a relay energizes the 27 volts, DC, to the memory point circuit

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7800-223370		
PROCUREM'T INFO.:			
PROCUREM'T COG.:	DESIGN COG.: Commercial		
F.I.I.N.:	FUNCTIONAL CLASS. NO.: 10.4.1		
	- Electronics Test Equipment - Sperry Part No. T-101043		

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

SERVO MOTOR CONTROL ASSEMBLY
Part No. T-101043
(Sperry Gyroscope Company)

ELECTROMECHANICAL DESCRIPTION: (Continued)

of the computer under test. Various jacks provide means of obtaining additional voltages and oscilloscope connections for further checking of other system functions.

Power Supply: 115 volts, AC, single-phase, 400 cycles per second.
115 volts, AC, single-phase, 60 cycles per second.
27 volts, DC.

MANUFACTURERS' OR CONTRACTORS' DATA:

Sperry Gyroscope Company, Division of the Sperry Corporation, Great Neck, Long Island, New York.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 33D5-5-19-1 (Operation and Service Instructions).
TO 33D5-5-19-4 (Parts Catalog).

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

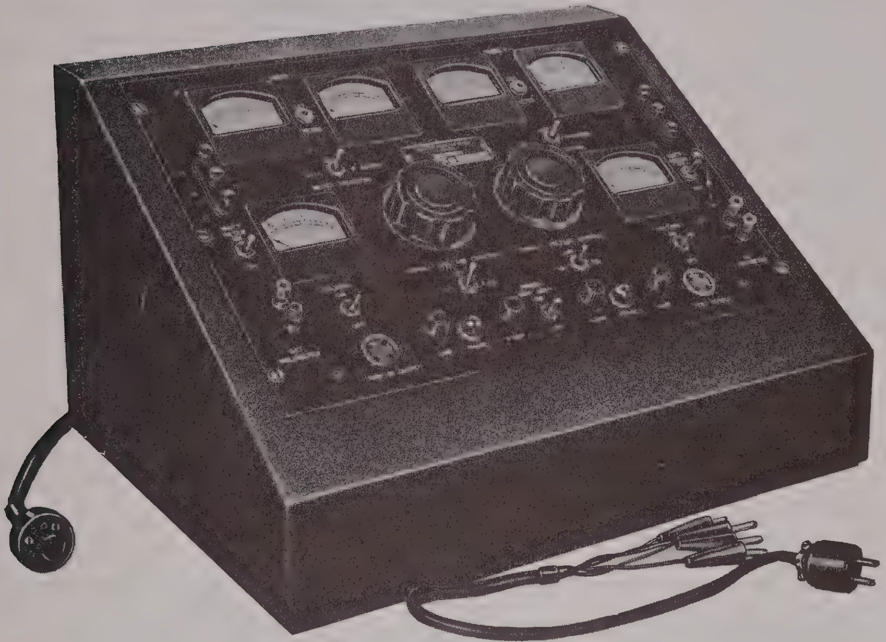
EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Servo Motor Control Assembly Sperry Part No. T-101043		7800-223370	9	12	16	30
3	Cable Assembly						
Sperry Part No. T-101043 - Electronics Test Equipment -							

AC SERVO CONTROL PANEL

Part No. T-101086

(Sperry Gyroscope Company.)



FUNCTIONAL DESCRIPTION

A portable control panel used for checking the operating condition and stall current of AC servo motors. The panel contains an ammeter, a milliammeter, a voltmeter, and appropriate binding posts and switches for external voltmeters and wattmeters. It provides a two-phase source of alternating current to operate the motor under test. With appropriate accessory equipment, tests may be made of the direction of rotation, stall torque, bearing friction, and rotor symmetry of the motor.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The equipment contains circuits for either single or double-phase power. The circuits for each of the two phases are similar. A switch makes it possible to shift from single to double-phase power. When the switch is in the two-phase position, two-phase power supplied by transformers is available at the output receptacle. If the switch is in the one-phase position, power

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-223500		
PROCUREM'T INFO.:			
PROCUREM'T COG.:		DESIGN COG.:	Commercial
F.I.I.N.:		FUNCTIONAL CLASS. NO.:	10.4.1
	- Electronics Test Equipment - Sperry Part No. T-101086		

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U.S.A.

AC SERVO CONTROL PANEL
Part No. T-101086
(Sperry Gyroscope Company)

ELECTROMECHANICAL DESCRIPTION: (Continued)

is supplied through a 0.1-microfarad capacitor or through a 4-microfarad capacitor and 50-ohm resistor. The capacity alone or capacity and resistance combination of this single-phase circuit can be selected by a switch.

Power Supply: 115 volts, AC, 400 cycles per second, three-phase.

Output Voltage: Variable from 0 to 150 volts, AC.

Meter Ranges: AC Current: 0 to 200 milliamperes, 0 to 1 ampere.
AC Voltage: 0 to 150 volts.

MANUFACTURERS' OR CONTRACTORS' DATA:

Sperry Gyroscope Company, Great Neck, Long Island, New York.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 33D5-5-30-1 (Operation and Service Instructions).
TO 33D5-5-30-4 (Parts Catalog).

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	AC Servo Control Panel (Sperry Part No. T-101086)	Steel-black wrinkle finish	7CAC-223500	11-1/4	20	15-1/2	30
1	Power Cable						
1	Adapter Cable						

GENERATOR, SIGNAL, VARIABLE RATE
Part No. 1000324
(Sperry Gyroscope Company)

FUNCTIONAL DESCRIPTION:

A portable general purpose equipment used to evaluate the dynamic performance of various servo systems or components. The test set provides a signal to excite the equipment under test and the response is presented for evaluation on an oscilloscope.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The circuit is made up of three major assemblies: (1) Motor Amplifier and Gear Train Assembly: This assembly contains a motor amplifier, a low frequency source and a gear train assembly which varies the speed of the signal generator synchros. A monitoring frequency meter and voltmeter are also included in this circuit. (2) Accessory Adapter Equipment Assembly: This assembly contains five major circuits, two 400-cycle demodulators, one modulator-demodulator, one unloading amplifier, and one 400-cycle buffer amplifier. (3) Oscilloscope Assembly: The oscilloscope assembly is a modified DuMont 304-AR oscilloscope. Various circuit combinations may be obtained by using a patch board assembly and associated patch cords.

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.			
PROCUREM'T INFO.:			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.1	
	- Electronics Test Equipment -		Sperry 1000324

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U.S.A.

GENERATOR, SIGNAL, VARIABLE RATE
Part No. 1000324
(Sperry Gyroscope Company)

ELECTROMECHANICAL DESCRIPTION: (Continued)

Power Supply: 115 ± 10 volts, AC, 400 ± 20 cycles per second, single-phase, 240 watts.

(1) Motor Amplifier and Gear Train Assembly
Frequency Range: 0.01 to 100 cycles per second.
Type of Transmission: Suppressed Carrier Modulation.
Total Harmonic Distortion: Less than 2%.
Noise Level: Less than 20 millivolts.

(a) Reference Signal: 10 volts rms, 400 cycles per second suppressed carrier modulated in phase with the 115 volts, 400-cycle line excitation. The output impedance is 130 ohms, and should be terminated in a 500-ohm load for correct magnitude and phasing.

(b) Phase Signal: 12.0 or 0.2 volts rms, 400 cycles per second suppressed carrier modulated.
Phase: Continuously variable with respect to reference signal from 0° to 360°.
Output Impedance: 130 ohms.
Frequency Indication: ± 1.5% of full scale.
Attenuation: ± 0.3 decibel of indicated value.
Phase: ± 1.5° of indicated value.

(2) Accessory Adapter Equipment Assembly

(a) Two 400-cycle demodulator circuits.
Conversion Gain: 65 DC volts/rms volts input.
Linear Operating Range: 0 to 3 volts rms input.
Unbalance: Less than 2 volts, DC.
Percentage Ripple: 8%.
Input and Output Impedance: 5,000 ohms.
Frequency Response: Flat to 15 cycles per second, down 1 decibel at 20 cycles per second.

(b) Modulator - Demodulator Circuit
Conversion Gain: 0.90 DC volt/DC volt input.
Linear Operating Range: 0 to 200 volts DC input.
Unbalance: Less than 5 volts DC.
Percentage Ripple: 8%.
Input Impedance: 200 K ohms.
Output Impedance: 5,000 ohms.
Frequency Response: Flat to 20 cycles per second, down 1 decibel at 30 cycles per second.

(c) Unloading - Amplifier Circuit
Gain: 0.95.
Linear Operating Range: 0 to 50 volts rms input.
Input Impedance: 20 megohms.

(Continued)

GENERATOR, SIGNAL, VARIABLE RATE
Part No. 1000324
(Sperry Gyroscope Company)

ELECTROMECHANICAL DESCRIPTION: (Continued)

Output Impedance: 1, 000 ohms.
Total Harmonic Distortion: Less than 2%.
Noise Level: Less than 10 millivolts.
Frequency Response: Flat from 0. 01 to 130 kilocycles per second, down 3 decibels at 150 kilocycles per second.

(d) 400-cycle Buffer Amplifier
Gain: 10.
Input Impedance: 10 megohms.
Output Impedance: 20 ohms.
Total Harmonic Distortion: Less than 2%.
Noise Level: Less than 10 millivolts.

MANUFACTURERS' OR CONTRACTORS' DATA:

Sperry Gyroscope Company, Division of Sperry-Rand Corporation, Great Neck, Long Island, New York; Contract AF 33(038)21096.

TUBE COMPLEMENT:

Signal Source Circuit: 1 JAN-12AX7, 1 JAN-6V6, 1 JAN-5Y3, 1 JAN-OB2.
400-cycle Demodulator Circuits: 2 JAN-5814.
Modulator - Demodulator Circuit: 1 JAN-5814, 1 JAN-5687.
Unloading-Amplifier Circuit: 1 JAN-12AT7, 1 JAN-OA2, 1 JAN-6X4, 1 JAN-OB2.
400-cycle Buffer Amplifier: 1 JAN-12AX7, 1 JAN-6AQ5, 1 JAN-5Y3.
Oscilloscope: 6 JAN-12AU7, 1 JAN-6AQ5, 1 JAN-6QB6, 1 JAN-OB2, 2 JAN-6J6, 1 JAN-5Y3BT, 2 JAN-1X2A, 2 JAN-6AL5, 2 JAN-5963, 1-(3-14), 1 JAN-5ADP-7.

REFERENCE DATA AND LITERATURE:

TO 33D3-4-19-1 (Instructions and Parts Breakdown).

SHIPPING DATA:

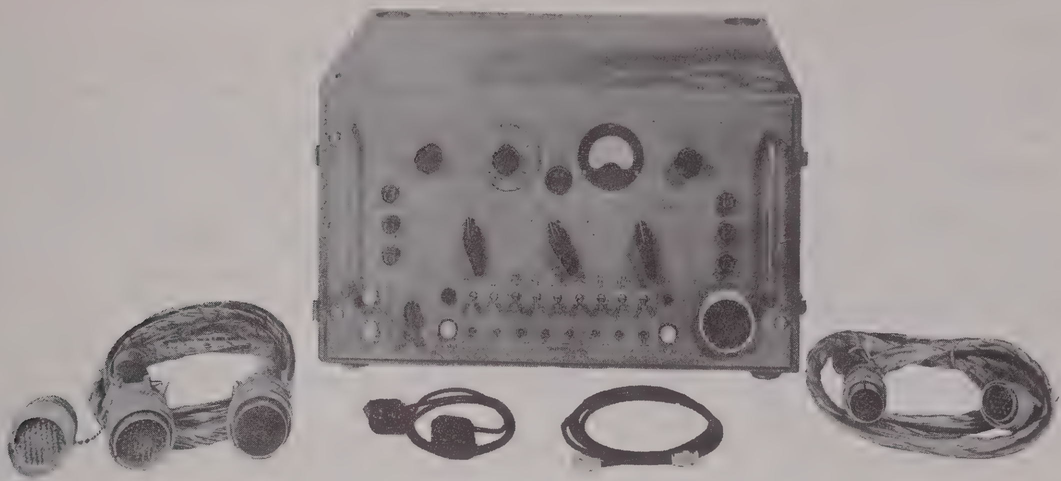
No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

GENERATOR, SIGNAL, VARIABLE RATE
Part No. 1000324
(Sperry Gyroscope Company)

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Generator, Signal, Variable Rate (Sperry 1000324)	Aluminum		26-5/32	19-1/2	19-1/4	120
1	Cable Assembly, Power			72 ± 1			
1	Patch Board Assembly			3-5/8	6-1/8	3/8	
14	Patch Cord (Red)			8-1/2 ± 1/2			
14	Patch Cord (Blue)			8-1/2 ± 1/2			
14	Patch Cord (Green)			8-1/2 ± 1/2			

COMPUTER TEST SET AN/GPM-4



FUNCTIONAL DESCRIPTION:

A portable special purpose set used to test and calibrate the functioning of Ballistics Computer CP-21A/APA-44 or CP-21B/APA-44 and Auxiliary Offset Unit C-1340/APA-44, components of Ground Position Indicator AN/APA-44A or AN/APA-44B. It is used to check circuitry for continuity, to align "Wind" dials, and to calibrate and check "Time of Fall," "Trial," "Altitude," and "Offset" potentiometers on the ballistics computer.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: A thyratron circuit is provided for checking defective potentiometers. The circuit is arranged so that the thyratron fires and lights a panel lamp if the brush leaves the card for one microsecond or longer.

The "POT SHORT" indicator lamp lights if one of the brushes becomes shorted to the card.

A DC voltmeter, located on the front panel, measures the release voltage of relays in the component under test. A potentiometer is used to vary the voltage applied to the relay armature.

"CONTINUITY" indicator lamps are used to check continuity of switches and circuits in the ballistics computer. Circuit continuity is checked through the contacts of relays when they are de-energized.

Four standard impedance networks calibrate the "Altitude" potentiometers.

Wind dial magnesyns in the ballistics computer are aligned with a magnesyn

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-801318-541		

PROCUREM'T INFO.: USAF Exhibit MCREXG-115, dated 19 August 1949

PROCUREM'T COG.: USAF DESIGN COG.: USAF, WADC, WGL

F.I.I.N.: FUNCTIONAL CLASS. NO.: 10.4.2

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A

COMPUTER TEST SET AN/GPM-4

ELECTROMECHANICAL DESCRIPTION: (Continued)

transmitter in the computer test set.

Ground range impedance networks in the ballistics computer are checked at three different altitudes by an impedance bridge in the computer test set.

Heaters are provided to maintain the ambient temperature of the component under test at an even value. A thermostatic switch controls the application of heater voltage and a lamp is lighted when the switch is closed.

Power Supply: 115 volts, AC, 400 cycles per second, single-phase; 115 volts, AC, 60 cycles per second, single-phase; and +300, +150, +26, and -150 volts, DC; all supplied by Power Supply Group AN/GPM-9.

Voltmeter Range: 0 to 30 volts.

Simulated Ground Ranges: 5, 000, 30, 000, and 50, 000 feet.

Simulated Wind Rate: 0 to 200 knots.

Temperature Limits: 0°C. (32°F.) to +45°C. (+113°F.), operational; -65°C. (-85°F.) to +85°C. (+185°F.), storage.

Relative Humidity: Up to 95%, operational and storage.

Altitude Range: Up to 10, 000 feet, operational; up to 50, 000 feet, storage.

MANUFACTURERS' OR CONTRACTORS' DATA:

Western Electric Company, 120 Broadway, New York, New York; Western Electric Spec. No. GS-15046; Dwg. Index No. BB-745275; USAF Contract AF 33(038) 7414; Approximate Cost per Unit, $5300. 00.

TUBE COMPLEMENT:

1 JAN-2D21, 1 JAN-6AK5, 1 JAN-12AU7.

REFERENCE DATA AND LITERATURE:

TO 33D5-5-2-1 (Operation and Maintenance Instructions).

SHIPPING DATA:

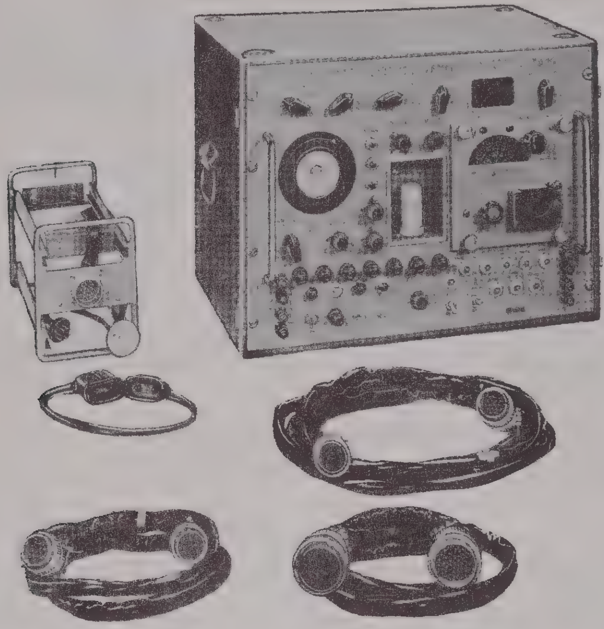
No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

COMPUTER TEST SET AN/GPM-4

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Computer Test Set AN/GPM-4		7CAC-801318-541	11-7/8	17-3/4	19-13/16	
	Including:						
2	Test Cable BO-717242			72 long			
1	Test Cable BO-711587			36 long			
1	Test Cable BR-717241			69 long			
1	Power Cable BR-711574			66 long			

COMPUTER TEST SET AN/GPM-5



FUNCTIONAL DESCRIPTION:

A portable, special purpose equipment used to test components of mileage Computer CP-22/APA-44 and the rate servo amplifier in Power Supply Unit PP-185/APA-44. It provides tests of the mileage channel components as follows:

Rate Servo Amplifier: gain; balance; mercury relay heater resistance; rates (in conjunction with built in reference mileage computer).

Mileage Computer: switch, relay, and lamp operation; measurement of charging circuit resistors; varistor operation; motor rotation; rates (in conjunction with built in rate servo amplifier); micro-potentiometer brush test for open circuit; micro-potentiometer test for DC electrical zero; micro-potentiometer test for AC null.

Commutator: operational test.

RELATIONSHIP TO OTHER EQUIPMENT:

	AIR FORCE	NAVY	ARMY
TYPE CLASS.	Alternate Standard		
STOCK NOS.	7CAC-801318-533		
PROCUREM'T INFO.: USAF Exhibit MCREXG-115 dated 19 August 1949			
PROCUREM'T COG.: USAF		DESIGN COG.: USAF, Arm.	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.2	
- Electronics Test Equipment -			AN/GPM-5

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

COMPUTER TEST SET AN/GPM-5

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: This equipment is composed of a rate servo amplifier used as a reference unit, a reference mileage computer modified from a CP-22/APA-44 Computer, and the necessary circuits to perform tests. The Power Supply Unit, PP-185/APA-44, of the Ground Position Indicator AN/APA-44 under test, supplies all necessary power. A test fixture supplies some of the necessary interconnections between units.

Operational Voltages: 110 to 120 volts, AC, 60 cycles per second, single phase; 110 to 120 volts, AC, 400 cycles per second, single phase; and 26 to 32 volts, DC. (Supplied by PP-185/APA-44.)

Output Voltage: 14 to 28 volts, DC, variable; 2.8 volts, AC, 100 cycles per second, single phase.

Temperature Limits: 0°C. (32°F.) to +45°C. (113°F.), operational; -65°C. (-85°F.) to +85°C. (+185°F.), storage.

Relative Humidity: Up to 95%, operational and storage.

Altitude Range: Up to 50,000 feet, non-operational.

MANUFACTURERS' OR CONTRACTORS' DATA:

Western Electric Company, 120 Broadway, New York, New York; Western Electric Spec. GS-15322; Drawing Index BB-745276; USAF Contract AF 33(038)7414; Approximate Cost per Unit, $12,000.00.

TUBE COMPLEMENT:

1 JAN-6SU7GTY, 1 JAN-2D21, 1 JAN-5755, 1 JAN-6AK5.

REFERENCE DATA AND LITERATURE:

TO 33D5-5-3-1 (Operation and Maintenance Instructions).

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Over-all Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
AN/GPM-5	- Electronics Test Equipment -					

COMPUTER TEST SET AN/GPM-5

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Over-all Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Computer Test Set AN/GPM-5 (GS-15322)		7CAC-801318-533				
	Including:						
1	Mileage Computer Test Set GS-15045	Steel		14-7/8	19-7/8	18	80
1	Test Set Fixture GS-15108			7	5-3/4	21	
1	Cable BO-711529			72 long			
1	Cable BO-711587			36 long			
1	Cable BR-717856			72 long			
1	Cable BR-711574			72 long			

123

COMPUTER TEST SET AN/UPM-35

FUNCTIONAL DESCRIPTION:

A portable test set used in the troubleshooting and routine testing of analog computers which use servomechanisms and resolver drivers. It detects faulty servo amplifiers or mechanical defects by measuring the error signals and servo motor voltages. Booster amplifiers may be checked by measuring the error voltage developed between grid and cathode of the input tube. Performance indications are displayed on a direct reading microammeter.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The circuit includes a selector switching system, DC and servo metering switches, and auxiliary switching circuits. The selector switches select the input circuit to be tested and the type of metering to be used. A special purpose vacuum tube voltmeter measures the error voltage which occurs across the input of the servo amplifier of the servos. The error voltage is the resultant of that component of the feedback voltage which is 180° out of phase with the input voltage and that component which is in quadrature with it. The error voltage

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.	Tentative Standard		
STOCK NOS.	7CAC-801318-5423		
PROCUREM'T INFO.:			
PROCUREM'T COG.: USAF	DESIGN COG.: USAF, WADC, C&N		
F.I.I.N.:	FUNCTIONAL CLASS. NO.: 10.4.2		
- Electronics Test Equipment -	AN/UPM-35		

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

COMPUTER TEST SET AN/UPM-35

ELECTROMECHANICAL DESCRIPTION: (Continued)

consists of a "real" component which is in phase with the input voltage and a quadrature component. By comparing the values of the error voltage components with the servo motor driving voltage, the performance of the servo system can be determined and troubles can be localized to either the mechanical or electrical section. The voltmeter is capable of measuring separately either component of the error voltage. A conventional DC meter measures the servo motor driving voltage.

Power Supply: 115 volts ±10%, AC, single-phase, 50 to 1600 cycles per second, 55 watts.

Meter Calibration: -100 to +100 divisions.

Meter Range: -150 to +150 microamperes.

Accuracy: Direct voltage measurements: ±5%. Voltage Comparison Measurements: ±0.1%.

Operating Temperature: -40°C (-40°F) to +55°C (+131°F).

MANUFACTURERS' OR CONTRACTORS' DATA:

General Precision Laboratory, Inc., 63 Bedford Road, Pleasantville, New York; USAF Development Contract W 33(038)-ac-14192; Production Contract AF 33(604) 5821; Approximate Cost per Unit, $1040.00.

TUBE COMPLEMENT:

3 JAN-6AU6WA, 3 JAN-5814, 1 JAN-6080, 1 JAN-5651, 1 JAN-5R4WGY.

REFERENCE DATA AND LITERATURE:

TO 33D5-5-4-1 (Operation Instructions).
TO 33D5-5-4-2 (Service Instructions).
TO 33D5-5-4-4 (Illustrated Parts Breakdown).

SHIPPING DATA:

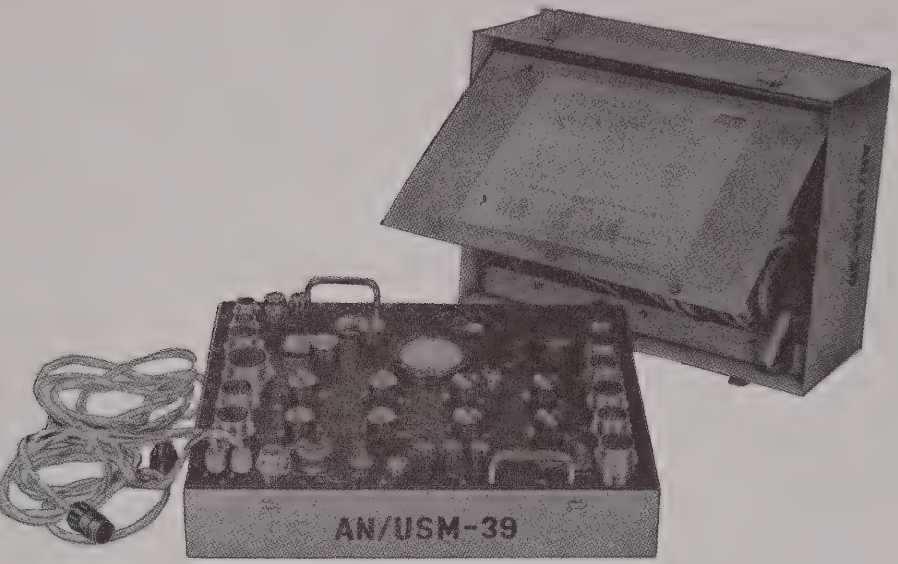
No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

COMPUTER TEST SET AN/UPM-35

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Computer Test Set AN/UPM-35		7CAC-801318-5423				
	Including:						
1	Test Set, Computer, TS-783/UPM-35			7-11/16	14-1/4	9-1/2	18-1/2
1	Cable Assembly, Special Purpose, Electrical CX-2363/UPM-35			12 long			1-1/2
1	Cable Assembly, Special Purpose, Electrical CX-2364/UPM-35			96 long			4
1	Cord, Power CX-337/U			72 long			1/2
1	Adapter, Test U-143/UPM-35			2-1/2 long	1 dia.		1/2
1	Case Assembly			9-9/32	16-3/32	9-3/8	6
1	Cover Assembly			9-3/16	14-7/8	3-1/2	3-1/2

COMPUTER TEST SET AN/USM-39



FUNCTIONAL DESCRIPTION:

This is a portable self-contained test set designed to be used in testing the Computer Set, Latitude and Longitude AN/ASN-6. This test set can be used to perform all tests except the preflight checkout test.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The test set is provided with 18 cables to permit electrical connections to be made with the computer set. The test set circuit includes a calibrated compass heading simulator, a calibrated speed simulator, a calibrated drift simulator, a synchro repeater with a dial indicator, an AC voltage indicator and associated multiplier resistors, and a DC indicator light. Ten switches are mounted on the panel to permit the following functions: (1) choice of operation of synchros, (2) output voltage check of the test set transformer, (3) selection of "Run" or "Standby" operation, (4) selection of the mode of operation of the computer set, and (5) turning the line supply on and off. Also on the panel are fourteen cable receptacle connectors to receive the connecting cables to the unit under test.

Power Supply: 115 volts, AC, 400 cycles per second, single-phase; 28 volts, DC.

	AIR FORCE	NAVY	ARMY
TYPE CLASS.	Tentative Standard		
STOCK NOS.	7CAC-801318-5328		
PROCUREM'T INFO.: Spec. MIL-T-4754			
PROCUREM'T COG.: USAF		**DESIGN COG.:** USAF, WADC, C&N	
F.I.I.N.:		**FUNCTIONAL CLASS. NO.:** 10.4.2	
	- Electronics Test Equipment -		AN/USM-39

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

COMPUTER TEST SET AN/USM-39

MANUFACTURERS' OR CONTRACTORS' DATA:

Ford Instrument Company, Division cf Sperry-Rand Corporation, 31-10 Thomson Avenue, Long Island City, New York; Contract AF 33(600)18882 and AF 33(600)26828.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 5N1-3-2-1 (Computer Set Handbook).

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Computer Test Set AN/USM-39		7CAC-801318-5328	13-1/2	18-3/16	14-1/2	53.5
	Including:						
1	Test Set TS-808/USM-39						
1	Cable CX-2621(XA)/U						
1	Cable CX-2622(XA)/U						

COMPUTER TEST SET AN/USM-39

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Cable CX-2623(XA)/U						
1	Cable CX-2624(XA)/U						
1	Cable CX-2625(XA)/U						
1	Cable CX-2626(XA)/U						
1	Cable CX-2627(XA)/U						
1	Cable CX-2628(XA)/U						
1	Cable CX-2629(XA)/U						
1	Cable CX-2630(XA)/U						
1	Cable CX-2631(XA)/U						
1	Cable CX-2632(XA)/U						
1	Cable CX-2633(XA)/U						
1	Cable CX-2634(XA)/U						

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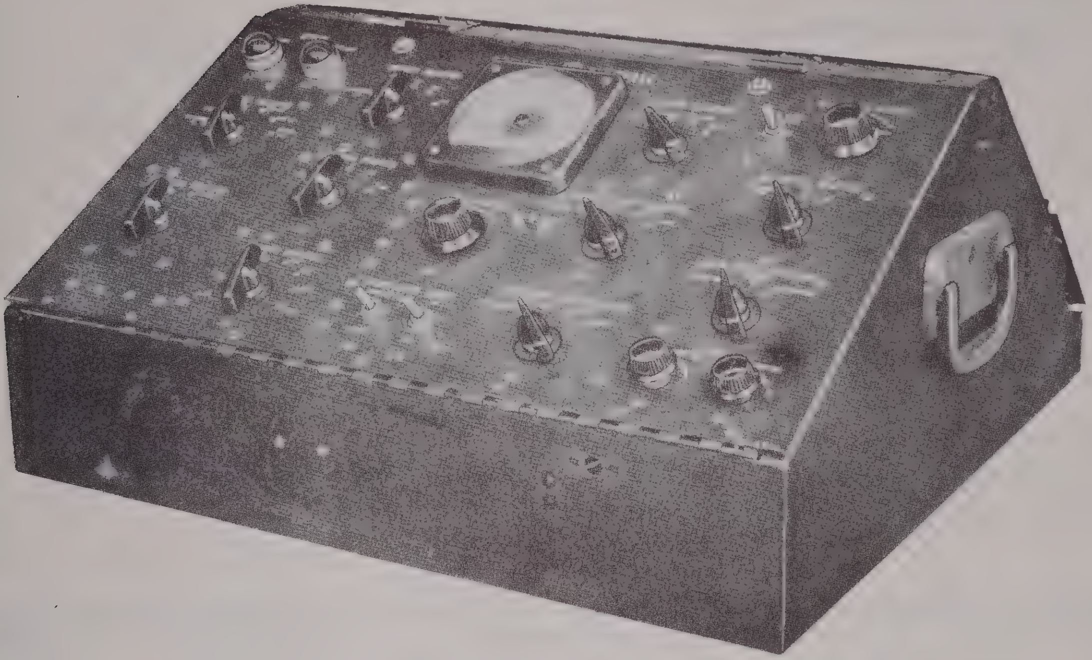
COMPUTER TEST SET AN/USM-39

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Cable CX-2635(XA)/U						
1	Cable CX-2636(XA)/U						
1	Cable CX-2637(XA)/U						
1	Cable CX-2638(XA)/U						

ELECTRICAL COMPUTER TESTER
Part No. 9628924G1
(General Electric Company)



FUNCTIONAL DESCRIPTION:

A portable special purpose test device used to test the overall performance of an electric computer and designed to show when a channel in the computer is faulty. It may be used either on board the aircraft or in a shop. The controls of the tester may be set to simulate a variety of target problems or conditions and, by comparing the answer from the computer with the known solution, the performance of the computer may be checked for accuracy.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The circuits incorporated in the tester are equivalent to those in the gyro drive unit, resolver input unit, handset portion of the control panel, and the gun sight. This equivalent circuitry is accomplished by varying the resistance and voltage values for range, speed, azimuth, elevation, density, etc., as they are presented to the computer for many specific target conditions.

Power Supply:

(1) 120 volts, AC, three-phase grounded neutral, 400 ±20 cycles per second,

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-801842-5		
PROCUREM'T INFO.:			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.2	
	- Electronics Test Equipment -	G. E. 9628924G1	

his project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U.S.A.

ELECTRICAL COMPUTER TESTER
Part No. 9628924G1
(General Electric Company)

ELECTROMECHANICAL DESCRIPTION: (Continued)

1500 watts maximum.
(2) 120 volts, AC, single-phase, 400 ±1 cycle per second, 5 watts.
(3) 28.5 volts, DC, 170 watts.

These power requirements are normally supplied by the remote control turret system, or through the depot computer tester.

MANUFACTURERS' OR CONTRACTORS' DATA:

General Electric Company, 1 River Road, Schenectady, New York.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 33D5-5-43-1 (Operation and Service Instructions).
TO 33D5-5-43-4 (Illustrated Parts Breakdown).

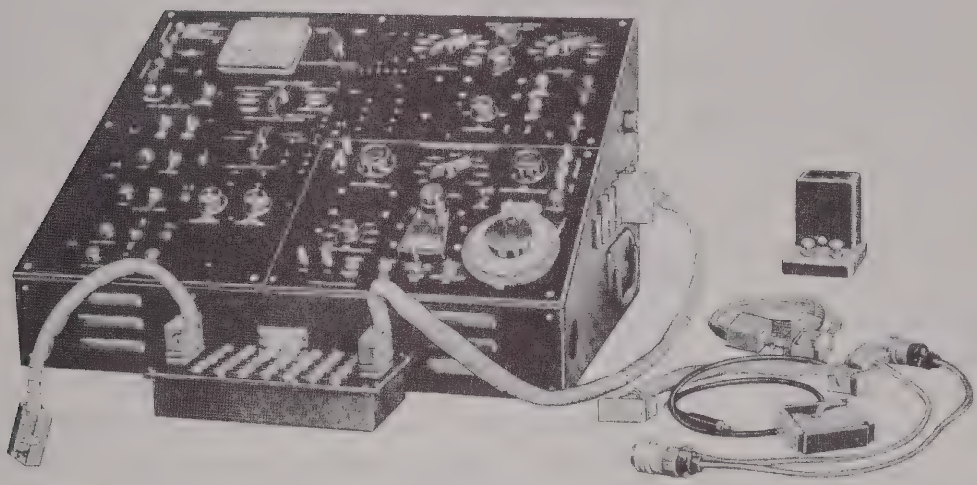
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Electrical Computer Tester (G.E. 9628924G1)	Metal	7CAC-801842-5	10-3/4	22	21	35

COMPUTER TESTER
Part No. 9797134G1
(General Electric Company)



FUNCTIONAL DESCRIPTION:

A portable special purpose test instrument for checking the performance of component assemblies of the electric computer as used on the A-5 and MD-1 Fire Control Systems. It is also used to test servo amplifiers of the resolver input unit, gyro drive units, and hemisphere sight, all components of the B-36 Remote Control Turret System and the B-47 Fire Control System.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: Circuitry provides for five types of tests as follows:

(1) Power Supply Test: This circuit consists of two selectro switches, dummy load resistors, and a switch connection to the precision voltage checker. Computer power supply assemblies are tested for voltages in DC circuits, ripple voltages (AC) in DC circuits, and voltages in AC circuits. The power supply assembly is energized through the connection to the tester, and a precision analyzer is connected to the AC jacks or DC jacks to measure these voltages. The selector switches are then used to pick up the voltages from the connector pins on the computer power supply.

(2) Precision Voltage Check: This circuit consists of a series of precision

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.			
PROCUREM'T INFO.:			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.2	
	- Electronics Test Equipment -		G.E. 9797134G1

his project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U.S.A.

COMPUTER TESTER
Part No. 9797134G1
(General Electric Company)

ELECTROMECHANICAL DESCRIPTION: (Continued)

resistors loading a 90-volt battery, a standard cell used to standardize the current flow, and a helipot and galvanometer for balancing the voltage being checked against the standardized voltage drops across the resistors. DC voltages between zero and 85 volts are measured to ±0.05 volt accuracy.

(3) Precision Resistance Check: A bridge-circuit in which a voltage is applied across the helipot and precision resistors of the "voltage checker" and the precision potentiometer cord. When the galvanometer indicates a null, the partial resistances are proportional and the ratio can be determined from the settings of the switch and helipot. This permits proper adjustment of the precision potentiometer cords to give the proportional voltage required for certain dial settings of the computer units.

(4) Servo Amplifier Test: The circuit provides for connecting in the amplifier to be tested, applying known input voltages, while measuring the output voltages, current, and polarity under dummy loads. Internal resistors simulate loading of the amplifiers, the selector switch permits various resistors to be placed across the amplifier output.

(5) Range-rate Test: A signal that decreases at a known, constant rate is fed into the range circuit of the computer and the results checked. A variable resistor, having 360-degree rotation, is driven at 4 rpm by a synchronous motor. This permits the voltage to decrease at a constant rate until reaching a predetermined value, then returning to its maximum value almost instantaneously, then decreasing again at the constant rate. Thus, the resulting voltage supplied to the range unit assembly simulates a negative range-rate signal.

Power Supply:

120 volts, AC, three-phase, Y-connected, 400 cycles per second, 1 kilovolt-ampere.
115 volts, AC, single-phase, 60 cycles per second, 225 volt-amperes.
27 volts, DC, 200 watts.
Dry-cell Batteries:
  Three 45-volt industrial batteries.
  One 6-volt battery.
  One 4-1/2-volt battery.

MANUFACTURERS' OR CONTRACTORS' DATA:

General Electric Company, 1 River Road, Schenectady, New York.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 33D5-5-44-1 (Operation and Service Instructions).
TO 33D5-5-44-4 (Illustrated Parts Breakdown).

COMPUTER TESTER
Part No. 9797134G1
(General Electric Company)

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

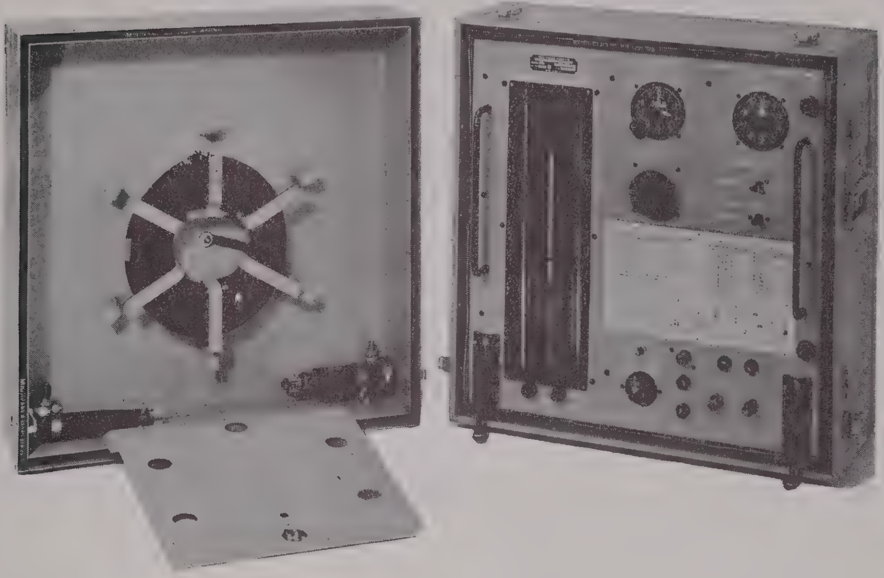
Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Computer Tester (G. E. 9797134G1)						
1	Test Panel Assembly						
1	Primary Amplifier Adapter						
3	Connector Cable			36 long			
1	Primary Amplifier Signal Adapter Cable						
1	Connector Cable			12 long			
1	Computer Junction Box Adapter Cable						
1	Range-Rate Adapter Cable						
1	Hemisphere Sight Connector Cable						

COMPUTER TESTER
Part No. 9797134G1
(General Electric Company)

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Over-all Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Gyro Drive Connector Cable						
1	Hemisphere Sight Adapter Connector Cable						
1	Gyro Drive Adapter Connector Cable						
1	Resolver Input Unit Adapter Cable						
1	Standard Cell (Eppley 100)						

TESTER, PRESSURE TRANSDUCER
Part No. 486005-110
(Hughes Aircraft Company)



FUNCTIONAL DESCRIPTION:

This is a portable instrument designed to simulate aircraft altitudes and velocities for the purpose of calibrating, aligning, and testing the air data computers installed in E-9 and MG-10 Fire Control Systems. This permits testing fire control systems mounted in either aircraft or test bench installations.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The tester applies controlled air pressures to the static and pitot pressure systems of the aircraft under test. This actuates the pressure transducers of the air data computers in the aircraft. The tester circuit contains a motor-driven vacuum pump. Valves are provided to permit the control of various air pressure circuits in the pneumatic system of the tester. Pressures are indicated on gauges and manometers mounted on the instrument panel. These include a static pressure gauge, a differential pressure gauge, a static pressure manometer, and a differential pressure manometer. The gauges are for wide range coarse readings and the manometers are for narrow range fine readings. Static and differential pressure controls are also mounted on the tester panel.

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-809642-5		
PROCUREM'T INFO.:			
PROCUREM'T COG.:	DESIGN COG.: Commercial		
F.I.I.N.:	FUNCTIONAL CLASS. NO.: 10.4.2		
	- Electronics Test Equipment -	Hughes 486005-110	

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U.S.A.

118

TESTER, PRESSURE TRANSDUCER
Part No. 486005-110
(Hughes Aircraft Company)

ELECTROMECHANICAL DESCRIPTION: (Continued)

A power input connector is provided to receive one end of the power cable.

Power Supply: 28 volts, DC, 230 watts.

Static Pressure Range: 2.7 to 31 inches of mercury, absolute.

Maximum Simulated Altitude: 55,000 feet.

Pitot Pressure Range: 2.7 to 40 inches of mercury, absolute.

Aircraft Simulated Velocity Range; Mach 0.2479 to Mach 1.1728.

Accuracy: ± 0.01 inch for pressures up to 15 inches of mercury; ± 0.3 inch for pressures above 15 inches of mercury.

Operating Temperature Range: -35°C. (-31°F.) to + 65°C. (+150°F.).

MANUFACTURERS' OR CONTRACTORS' DATA:

Hughes Aircraft Company, Florence and Teale Streets, Culver City, California; Contract AF 33(600)27013, 14 September 1954; Approximate Cost per Unit, $2471.00.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 33D5-5-105-1 (Operation and Service Instructions).

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

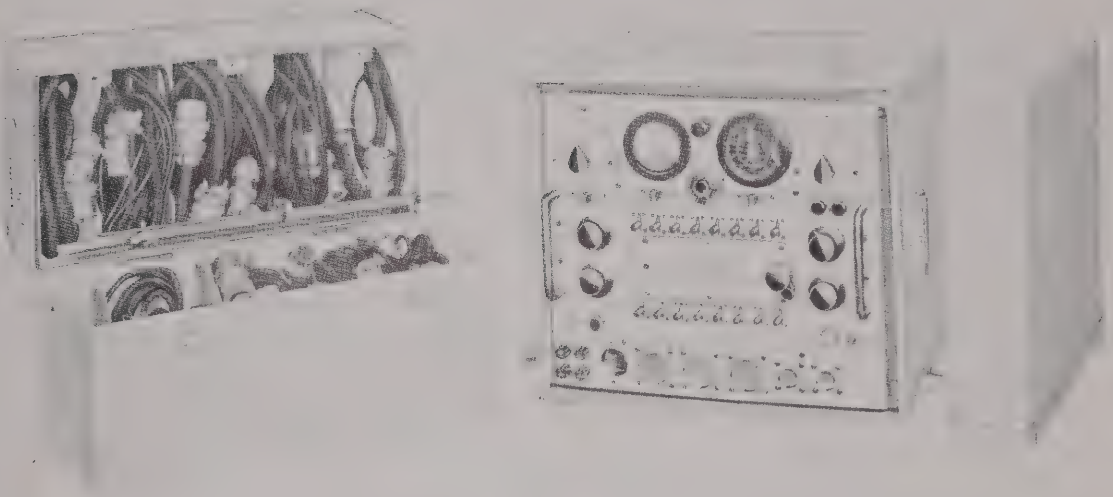
Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Tester, Pressure Transducer (Hughes 486005-110)		7CAC-809642-5	24	24	15	80
	Including:						
1	Straight Tube to Hose Adapter (Hughes 401237)						
						(Continued)	

TESTER, PRESSURE TRANSDUCER
Part No. 486005-110
(Hughes Aircraft Company)

EQUIPMENT SUPPLIED: (Continued)

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Power Cable Assembly (Hughes 402061)						
1	Pitot Line Adapter (Hughes 408669)						
2	Union (Hughes AN815-41)						
1	Vacuum Hose Subassembly (Hughes 408727)						

TEST SET, COMPUTER SERVICE AND ALIGNMENT, TYPE MA-1
Part No. 486094-100
ASSEMBLY, CABLE, TYPE MA-1, WITH CARRYING CASE
Part No. 486095-100
(Hughes Aircraft Company)



FUNCTIONAL DESCRIPTION:

A portable field test equipment specifically designed to check, calibrate, and align the computer circuits used in the E-4, E-5, and E-6 Fire Control Systems. The test set supplies flight-simulated signals to the computer under test, then measures the circuit response on various indicators. The simulated signals represent such flight conditions as antenna position, antenna rate of motion, target range, and target range rate. Output signals are tested by various test circuits to determine if the computer circuitry is operating normally. The circuits in the test set may be used singularly or in combination to supply signals, and to measure the outputs for the different tests and alignments. Circuit selection is made by switches on the front panel of the test set.

The cable assembly is a portable carrying case containing 15 compartments for storing and carrying the cables required for connecting the test set to the computer system under test.

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-801319-55 7CAC-170169-59		
PROCUREM'T INFO.:			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F. I. I. N.:		FUNCTIONAL CLASS. NO.: 10.4.2	
	- Electronics Test Equipment -Hughes 486094-100, 486095-100		

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U.S.A.

TEST SET, COMPUTER SERVICE AND ALIGNMENT, TYPE MA-1
Part No. 486094-100
ASSEMBLY, CABLE, TYPE MA-1, WITH CARRYING CASE
Part No. 486095-100
(Hughes Aircraft Company)

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The signal simulators are: roll synchro, range rate, antenna position, and antenna angular rate. Voltage divider circuits simulate range, static pressure, ram pressure, lift acceleration and differential pressure. The following test circuits are incorporated in the computer test set:

DC Comparator: The circuit functions as a balanced DC vacuum tube voltmeter to compare an unknown potential to a known test set potential, or to balance two DC signal voltages.

AC Comparator: This circuit incorporates a phase sensitive detector with the DC comparator circuit to indicate voltage equality between two AC voltages that are in phase.

Phase Sensitive Detector Driver: A push-pull voltage amplifier that supplies an AC reference voltage to five phase sensitive detectors in the test set, and also excitation voltage to the antenna and test set resolvers.

Phase Sensitive Detector: Five phase sensitive detector circuits are used in the test set to indicate phase and magnitude of AC voltages by the magnitude and polarity of the DC voltage output.

Phase Comparator: This circuit determines the phase relationship between a 500-cycle per second reference voltage and the output voltage of the azimuth or elevation torque amplifier.

Antenna Rate Control Amplifier: This amplifier receives the antenna rate signal from the torque amplifier output, compares it with the driving voltage, and converts it to a DC voltage. The DC voltage is applied back to the torque amplifier input to drive the antenna at the adjusted preset rate.

Simulated Amplifier: Amplifier, utilizing twin triode and cathode follower circuit, simulates an output equal to the torque amplifier output voltage at the adjusted antenna rate.

400-Cycle Oscillator: The fork oscillator develops a precision 400-cycle output voltage, accurate to within ±0.1 percent over normal temperature ranges.

Clock Amplifier: A power amplifier used to boost the output of the 400-cycle fork oscillator sufficiently to drive the interval timer motor, the range rate potentiometer motor, and the chopper used in the DC steering loop amplifier.

Range Rate Circuit: The range rate circuit consists of a potentiometer driven by a synchronous motor.

DC Steering Loop Amplifier: This circuit amplifies the steering signals from the horizontal or vertical amplifier in the flight data computer, and provides tracking error voltages to the appropriate torque amplifier in the amplifier power

TEST SET, COMPUTER SERVICE AND ALIGNMENT, TYPE MA-1
Part No. 486094-100
ASSEMBLY, CABLE, TYPE MA-1, WITH CARRYING CASE
Part No. 486095-100
(Hughes Aircraft Company)

ELECTROMECHANICAL DESCRIPTION: (Continued)

supply. The torque amplifier then generates an azimuth or elevation rate output which is coupled back to the horizontal or vertical amplifier in closed-loop tests to solve the steering equation.

Antenna Positioning Amplifier: The output of this amplifier is connected to the proper torque amplifier to maintain the antenna at zero degrees in elevation while it scans in azimuth, or at zero degrees in azimuth while it scans elevation.

Rate Measuring Circuit: The rate measuring circuit triggers the interval timer and times the antenna sweep rate between fixed positions on each side of dead center by actuating the interval timer magnetic clutch at the coincidence points.

Sin θ Shield Bootstrap: This circuit, utilizing a cathode follower, is used to reduce the effective capacitance between the conductor carrying antenna resolver sine signals and its shield.

MANUFACTURERS' OR CONTRACTORS' DATA:

Hughes Aircraft Company, Florence and Teale Streets, Culver City, California.

TUBE COMPLEMENT:

1 JAN-5R4WGY, 1 JAN-6AS7G, 1 JAN-6X4W, 14 JAN-12AX7, 1 JAN-5651, 1 JAN-5687, 1 JAN-5725, 6 JAN-5726, 2 JAN-5814, 2 JAN-6005, 4 JAN-6136, 8 JAN-6201.

REFERENCE DATA AND LITERATURE:

TO 33D5-5-34-1 (Operation and Service Instructions).
TO 33D5-5-34-3 (Overhaul Instructions).
TO 33D5-5-34-4 (Illustrated Parts Breakdown).

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

TEST SET, COMPUTER SERVICE AND ALIGNMENT, TYPE MA-1
Part No. 486094-100
ASSEMBLY, CABLE, TYPE MA-1, WITH CARRYING CASE
Part No. 486095-100
(Hughes Aircraft Company)

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Test Set, Computer Service and Alignment Type MA-1 Hughes Part No. 486094-100		7CAC-801319-55	17	19	17	
1	Assy., Cable Type MA-1 with Carrying Case Hughes Part No. 486095-100		7CAC-170169-59	11	22	8	
1	Cable Assembly		7CH7 402002				
1	Cable Assembly		7CH7 402003				
1	Cable Assembly		7CH7 402004				
1	Cable Assembly		7CH7 402006				
1	Cable Assembly		7CH7 402007				
1	Cable Assembly		7CH7 402008				
1	Cable Assembly		7CH7 402009				
1	Cable Assembly		7CH7 402010				
						(Continued)	

TEST SET, COMPUTER SERVICE AND ALIGNMENT, TYPE MA-1
Part No. 486094-100
ASSEMBLY, CABLE, TYPE MA-1, WITH CARRYING CASE
Part No. 486095-100
(Hughes Aircraft Company)

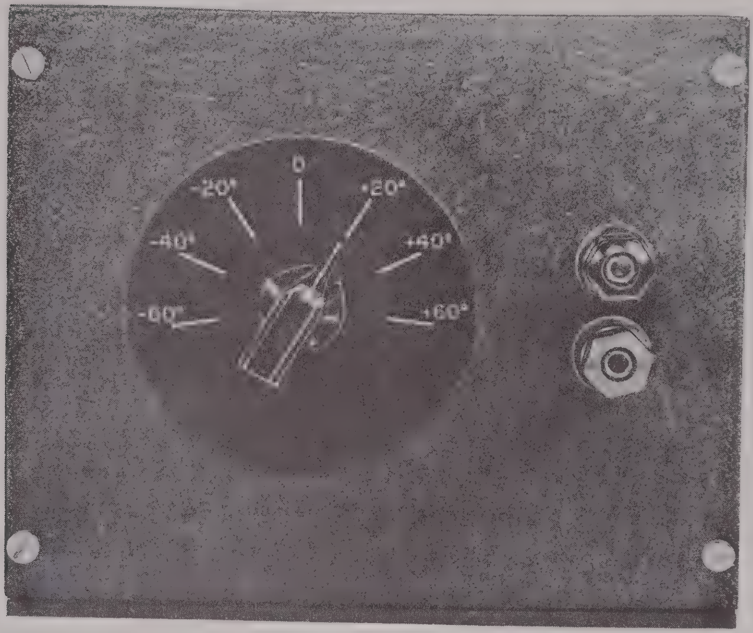
EQUIPMENT SUPPLIED: (Continued)

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Cable Assembly		7CH7 402011				
1	Cable Assembly		7CH7 402012				
1	Cable Assembly		7CH7 402013				
1	Cable Assembly		7CH7 402015				
1	Cable Assembly		7CH7 404512				
1	Cable Assembly						
1	Cable Assembly						

SWITCH, RESISTANCE SELECTOR

Part No. TE 5717

(Kollsman Instrument Corporation)



FUNCTIONAL DESCRIPTION:

This switch is used in testing the C-2 True Airspeed and Mach Number Computer. It is intended to permit selecting and introducing equivalent resistances into the temperature bulb circuit of the computer.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The unit contains a single-pole, seven-position switch which permits selecting any one of seven resistances in the unit. Electrical connections to the computer under test are made through two 5-way binding posts on the switch panel. The switch dial is marked in degrees centigrade.

Power Supply: The computer under test provides the electrical power which is used and distributed by the resistance selector switch.

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-783650		
PROCUREM'T INFO.:			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.2	
	- Electronics Test Equipment -	Kollsman TE 5717	

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

SWITCH, RESISTANCE SELECTOR
Part No. TE 5717
(Kollsman Instrument Corporation)

ELECTROMECHANICAL DESCRIPTION: (Continued)

Resistance Values and Corresponding Degree Settings:

852 ohms at -60 degrees C.
963 ohms at -40 degrees C.
1079 ohms at -20 degrees C.
1200 ohms at 0 degrees C.
1327 ohms at +20 degrees C.
1460 ohms at +40 degrees C.
1601 ohms at +60 degrees C.

Resistor Tolerance: ±0.05%.

MANUFACTURERS' OR CONTRACTORS' DATA:

Kollsman Instrument Corporation, 80-08-45th Avenue, Elmhurst 73, New York; Contract No. AF 33(600)27206; 20 May 1954; Approximate Cost per Unit $115.00.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 5F5-3-5-3 (Overhaul Instructions).

SHIPPING DATA:

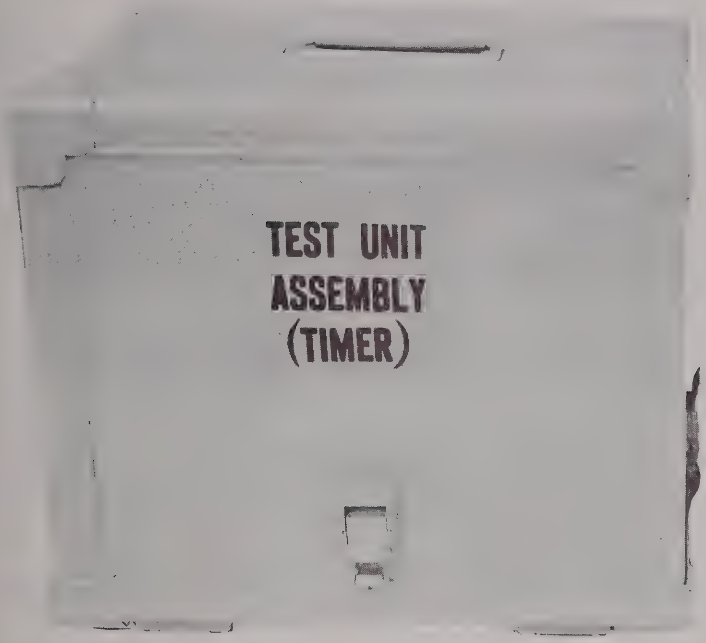
No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Switch, Resistance Selector (Kollsman TE 5717)	0.19	6	9	6	3

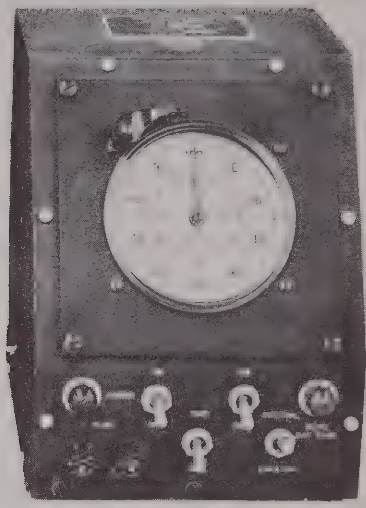
SWITCH, RESISTANCE SELECTOR
Part No. TE 5717
(Kollsman Instrument Corporation)

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Switch, Resistance Selector (Kollsman TE 5717)		7CAC-783650	5	6	4-7/8	1-7/8

TEST UNIT ASSEMBLY, TIMER
(Assembly, Timer)
Part No. E 66228
(W. L. Maxson Corporation)





FUNCTIONAL DESCRIPTION:

A portable instrument which is used at field-level maintenance to perform tests on the Computer Group-Ballistics Data, Bombing, type K-4. The assembly provides a means for checking such critical timing functions as the operation of the velocity servo and bomb bay door settings, and the functioning of the cam-operated switches in the bomb release assembly. It measures the pulse-duration and interval-between-pulses of the bomb release assembly and bomb bay door pulse signals.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The circuitry of the test unit assembly consists of switches, resistors, relays, and indicator lights as necessary to control the timer of the assembly during testing. A power switch energizes the timer for operation. The

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-801390		
PROCUREM'T INFO.:			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.2	
	- Electronics Test Equipment -		Maxson E66228

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TEST UNIT ASSEMBLY, TIMER
(Assembly, Timer)
Part No. E 66228
(W. L. Maxson Corporation)

ELECTROMECHANICAL DESCRIPTION: (Continued)

motor of the timer runs constantly when the power switch is in the "ON" position. The clock of the assembly runs when the clutch circuit is completed. This closing and opening is accomplished by pulse signals received by the timer when the bomb release assembly or the bomb bay is operated. Selection of one of the two signal sources is controlled by the "Bomb Release" or "Bomb Bay Door" switch. With the "Interval-Duration" and "Time-Set" switches in the downward position, and the "Bomb Release-Bomb Bay Door" switch in the "Bomb Release" position, the clock is started and kept in operation for the duration of the bomb release pulse. At the expiration of the pulse the circuit is de-energized, stopping the clock for an indication of pulse duration, which is read directly on the clock. To measure the time interval between pulses, the interval switch described above is moved into an upward position. This keeps the circuit closed after the expiration of the bomb release pulse. The "Time-Set" switch is then moved into an upward position. At the next bomb release pulse the clutch circuit is de-energized, which stops the clock and gives an indication of the time interval between pulses.

Power Supply: 115 volts, AC, 60 cycles per second, single phase.

Timer Ranges: 0 to 60 in increments of one (1) second, 0 to 100 in increments of 1/100 second.

MANUFACTURERS' OR CONTRACTORS' DATA:

W. L. Maxson Corporation, 460 West 34th Street, New York, New York; Contract No. AF 33(600)-5977; Approximate Cost per Unit, $960.00.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 11B10-8-5-2 (Service Instructions).
TO 11B10-8-5-3 (Overhaul Instructions).
TO 11B10-8-5-4 (Parts Breakdown).

SHIPPING DATA:

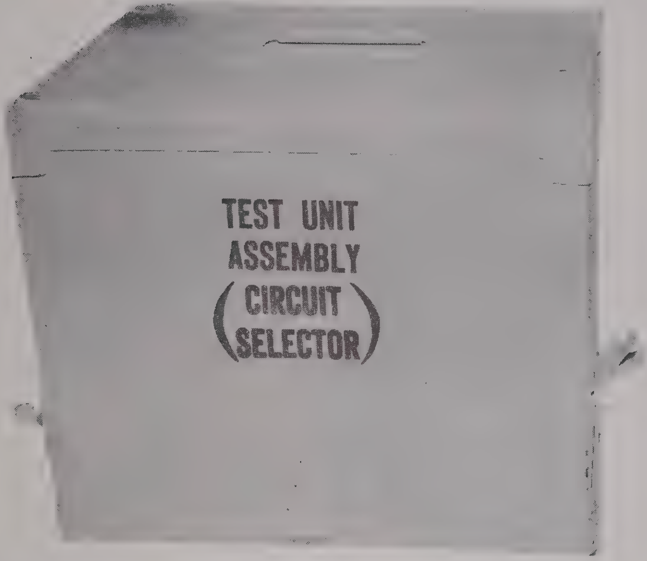
No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Test Unit Assembly, Timer W. L. Maxson E66228	2.5	18	16	15	23

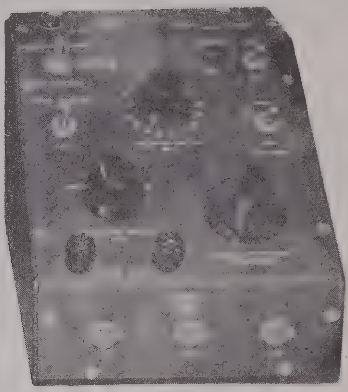
TEST UNIT ASSEMBLY, TIMER
(Assembly, Timer)
Part No. E 66228
(W. L. Maxson Corporation)

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Test Unit Assembly, Timer (W. L. Maxson E 66228)	Metal	7CAC-801390	13-5/8	11-3/4	11	14
1	Cord Assembly						

TEST UNIT ASSEMBLY
Part No. E66229
(W.L. Maxson Corporation)





FUNCTIONAL DESCRIPTION:

A portable device used in the testing of the K-4 Computer Unit Assemblies. The test unit assembly interconnects the computer unit assemblies with suitable meters and permits setting up the test circuits required for the alignment and checking procedures.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The test unit assembly is basically a switch box. The circuit components include a six-pole 12-position rotary switch, a six-pole 18-position rotary switch, four toggle switches, an autotransformer, and a step-up transformer. The switches and controls permit the following test functions: (1) Test circuit selections, (2) External meter function selection, (3) Selection of power input to motor under test for clockwise or counterclockwise rotation, (4) Selection of high or low voltage for the test circuit, (5) Adjustment of autotransformer voltage output, (6) Controlling the power supply to the test unit.

Three receptacles are provided on the front of the test unit for electrically connecting the assembly to be tested. Two pairs of jacks on the top of the unit

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-801391		
PROCUREM'T INFO.:			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F.I.I.N.:		FUNCTIONAL CLASS. NO.:	10.4.2
	- Electronics Test Equipment -		Maxson E66229

is project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U.S.A.

TEST UNIT ASSEMBLY

Part No. E66229

(W.L. Maxson Corporation)

ELECTROMECHANICAL DESCRIPTION: (Continued)

permit plugging in external auxiliary meters for test measurements. A power cable is used for connecting the test unit assembly to the external power supply.

Power Supply: 115 volts, AC, 400 cycles per second, single-phase.

Accuracy: ±20%.

MANUFACTURERS' OR CONTRACTORS' DATA:

The W.L. Maxson Corporation, New York, New York; Contract No. AF 33(600)-5977; Approximate Cost per Unit, $859.72.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 11B10-8-5-2 (Service Instructions).

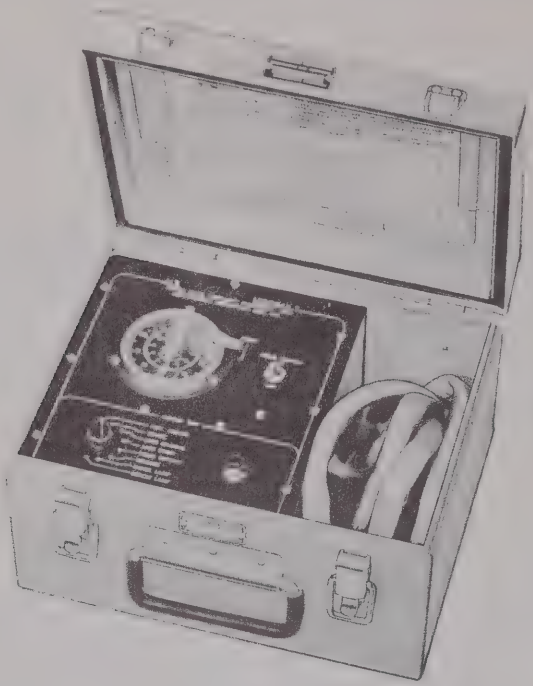
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Test Unit Assembly (Maxson E66229)	1	11	11-3/4	13-5/8	11

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Test Unit Assembly (Maxson E66229)	Metal	7CAC-801391	6-3/8	7-1/4	9-5/8	7

TESTER-FIELD PREFLIGHT ELECTRICAL LABS
Part No. UG 204A-1
(Minneapolis-Honeywell Regulator Company)



FUNCTIONAL DESCRIPTION:

A tester which facilitates preflight checking of the operation of type MA-1, MA-1A, or MA-2 LABS Computer Sets installed in an aircraft. It can be used (a) to check the accuracy of the LABS timer; (b) to initiate the bomb release cycle and indicate the application of power to the release circuits; and (c) to indicate power on the following circuits: 115 volts, 400 cycles per second supply; 28 volts, DC supply; gyro gaging; LABS start; bomb button; reticle lamp; bomb release; and panel lamp circuits.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: Circuit includes a time totalizer, a selenium rectifier, a micropositioner, control switches, an indicating light, and cables for connecting to the relay box and to the system under test.

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-806055		
PROCUREM'T INFO.: Spec. MIL-T-945			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.2	
	- Electronics Test Equipment -M. Honeywell UG 204A-1		

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TESTER-FIELD PREFLIGHT ELECTRICAL LABS
Part No. UG 204A-1
(Minneapolis-Honeywell Regulator Company)

ELECTROMECHANICAL DESCRIPTION: (Continued)

Power Supply: 115 volts, AC, 400 cycles per second, single phase (supplied by computer under test), 30 watts maximum power and consumption.

MANUFACTURERS' OR CONTRACTORS' DATA:

Minneapolis-Honeywell Regulator Company, 2753 Fourth Avenue, Minneapolis 8, Minnesota; Contract No. AF 33(600)23140.

TUBE COMPLEMENT:

1 type-CR1 (selenium rectifier).

REFERENCE DATA AND LITERATURE:

TO 33D5-92-11 (Instructions and Parts Breakdown).

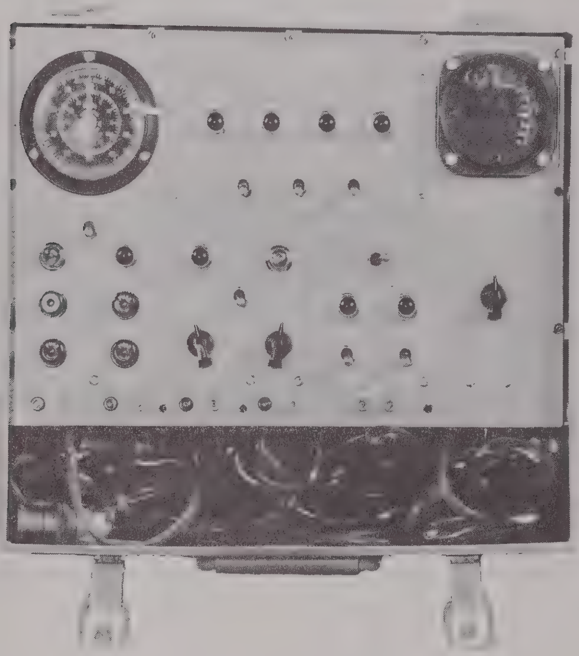
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Tester-Field Preflight Electrical LABS (Minneapolis-Honeywell UG 204A-1)	Aluminum	7CAC-806055	7-7/8	10-1/8	12-1/4	11.5

TESTER-MOCKUP, ELECTRICAL, LABS
(Tester, Mockup, Electrical Labs)
Part No. UG 205A-1
(Minneapolis-Honeywell Regulator Company)



FUNCTIONAL DESCRIPTION:

A portable tester which is used at depot level maintenance for electrically testing the complete type MA-1 or MA-1A Labs Computer Set. It also provides for testing the RG33A Relay Box and the dive and roll indicator (components of the MA-1) independently of other components. The unit facilitates interconnection of components and provides accessible test points for use with standard electrical measuring instruments.

RELATIONSHIP TO OTHER EQUIPMENT:

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-805525		
PROCUREM'T INFO.: USAF Dwg. AD 5133-B			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.2	
- Electronics Test Equipment -M. Honeywell UG205A-1			

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TESTER-MOCKUP, ELECTRICAL, LABS
(Tester, Mockup, Electrical Labs)
Part No. UG 205A-1
(Minneapolis-Honeywell Regulator Company)

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The tester circuit consists of control switches, indicating lights, an electrically operated timer, a roll and dive indicator, and pin terminal jacks. The unit is used to perform the following functions:

- (a) Measure the time interval of the intervalometer.
- (b) Check indicator operation.
- (c) Check operation of caging motor of gyro.
- (d) Check sector switches and potentiometers of gyro.
- (e) Check operation of gyro rotors and erection motors.

Cables and receptacles provide a means of interconnecting the tester and the components of the computer.

Power Supply: 115 volts, AC, 400 cycles per second, single phase; 28 volts, DC.

Measuring Indicator Scales:

Timer: 0 to 60 seconds in increments of one second.
0 to 1 second in increments of 1/100 second.
Roll Indicator: 9-0-9 degrees in increments of one degree.
Dive Indicator: 90-0-90 degrees in increments of five degrees.

MANUFACTURERS' OR CONTRACTORS' DATA:

Minneapolis-Honeywell Regulator Company, 2753 Fourth Avenue, Minneapolis 8, Minnesota; Contract No. AF 33(600)23140.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

Minneapolis-Honeywell data sheet.

SHIPPING DATA:

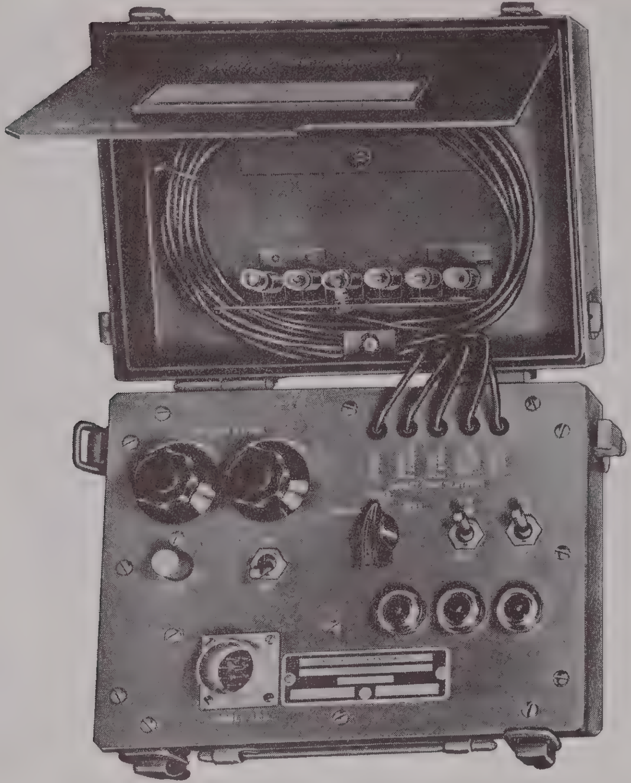
No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
M. Honeywell UG205A-1 - Electronics Test Equipment -						

TESTER-MOCKUP, ELECTRICAL, LABS
(Tester, Mockup, Electrical Labs)
Part No. UG 205A-1
(Minneapolis-Honeywell Regulator Company)

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Tester-Mock-up Electrical, Labs (Minneapolis-Honeywell UG 205A-1)	Aluminum	7CAC-805525	9	15-1/2	13-1/2	25

CONTROL ASSEMBLY - TRACKING COMPUTER
Part No. T-101008
(Sperry Gyroscope Company)



FUNCTIONAL DESCRIPTION:

A portable unit used to replace the Tracking Control A-1, which is a part of the A-1 Bombing Navigational Computer, during system tests. The control assembly includes circuits to perform all of the Tracking Control A-1 functions, plus additional circuits to facilitate data readings for bombing problems of the system test procedure.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The control assembly circuit consists of switches, potentiometers, lamps, a transformer, a relay, and a receptacle. Electrical connection to the computer under test is accomplished by means of a cable receptacle. Tracking servo motors in the computer are controlled by the position of the potentiometer arms in the assembly. By displacement of the potentiometer arms

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-223400		
PROCUREM'T INFO.:			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.2	
	- Electronics Test Equipment -		Sperry T-101008

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

CONTROL ASSEMBLY - TRACKING COMPUTER
Part No. T-101008
(Sperry Gyroscope Company)

ELECTROMECHANICAL DESCRIPTION: (Continued)

from the center positions, the magnitude and phase of the error signals sent to the tracking servo motors may be controlled. By coordinating the functional operation of the computer under test with the test-problem data supplied with the assembly, a means of determining operational quality is provided.

Power Supply: 115 volts, AC, 400 cycles per second; 27 volts, DC, 2.5 watts.

MANUFACTURERS' OR CONTRACTORS' DATA:

Sperry Gyroscope Company, Great Neck, Long Island, New York.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 33D5-5-11-1 (Operation and Service Instructions).
TO 33D5-5-11-4 (Parts Breakdown).

SHIPPING DATA:

No. of Boxes	**Contents & Identification**	**Volume (Cu. Ft.)**	**Overall Dimensions (inches)**			**Weight Packed (Lbs.)**
			H	**W**	**D**	

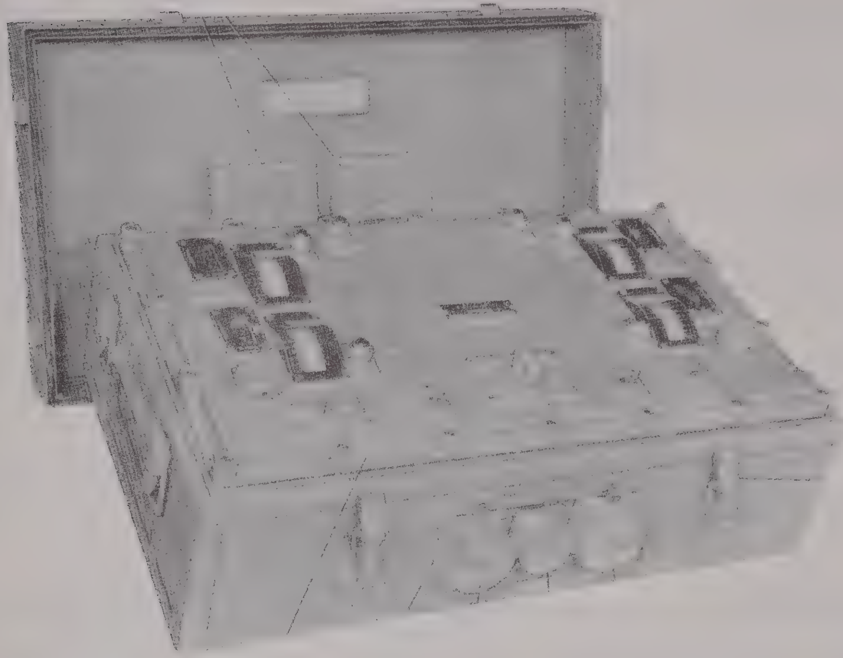
EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	**Name and Nomenclature**	**Case Mat'l**	**Stock Numbers (USAF) (Navy) (Army)**	**Overall Dimensions (inches)**			**Weight (Lbs.)**
				H	**W**	**D**	
1	Tracking Computer Control Assembly Sperry Part No. T-101008	Metal	7CAC-223400				
1	Carrying Case			7-3/4	10	4-1/2	
						Total:	5.5

COMPONENT RESOLVER TESTER ASSEMBLY

Part No. T-101009

(Sperry Gyroscope Company)



FUNCTIONAL DESCRIPTION:

A portable instrument which is used to check the range and heading synchronization of the polar converter, and the operational functions of the bomb release computer. These are components of the A-1A Bombing-Navigational Computer. The tester provides a controllable means of supplying data to the component resolver sections of the computer.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: Connections are made between the tester and the unit under test by means of cables and receptacles. Switches located on the front panel of the tester control the power and select the circuit to be used. Knobs and indicating dials which are also on the front panel, facilitate the supplying of data to the resolver under test and the reading of test results. Synchros in the tester are substituted for transmitter synchros in the computer to supply the desired

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-801817-5		
PROCUREM'T INFO.:			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.2	

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

COMPONENT RESOLVER TESTER ASSEMBLY
Part No. T-101009
(Sperry Gyroscope Company)

ELECTROMECHANICAL DESCRIPTION: (Continued)

data. Cables leading from the component resolver to the computer are disconnected from the computer and connected to the tester. By setting the selector switch of the tester to a desired position, the readings are taken from the indicating dials.

Power Supply: Power is obtained from the unit under test.

MANUFACTURERS' OR CONTRACTORS' DATA:

Sperry Gyroscope Company, Great Neck, Long Island, New York.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 33D5-13-5-1 (Operation and Service Instructions).
TO 33D5-13-5-2 (Parts Breakdown).

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Component Resolver Tester Assembly (Sperry Part No. T-101009)	Metal	7CAC-801817-5	9-1/2	14-1/2	24-1/2	53

TRANSMITTER, DUMMY T. A. S. AND ALT.
Part No. T-101024
(Sperry Gyroscope Company)

FUNCTIONAL DESCRIPTION:

A portable unit which is used to simulate various aircraft true airspeed (T. A. S.) and altitude (ALT.) conditions when running system bench problems or similar tests on the A-1A Computer.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The power required for operation is supplied by the A-1A Computer system. The circuit includes two type RAY-248 Synchros; one for simulating altitude, and the other for simulating airspeed.

Power Supply: 26 volts, AC, 400 cycles, single-phase, 0.9 watts.

Simulated Range: 0 to 2,000 feet altitude.

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-365350		
PROCUREM'T INFO.:			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.2	
	- Electronics Test Equipment -		Sperry T-101024

his project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TRANSMITTER, DUMMY T.A.S. AND ALT.
Part No. T-101024
(Sperry Gyroscope Company)

MANUFACTURERS' OR CONTRACTORS' DATA:

Sperry Gyroscope Company, Division of the Sperry-Rand Corporation, Great Neck, Long Island, New York; Contract No. AF 33(600)6565.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 33D5-12-13-1 (Operation and Service Instructions).
TO 33D5-12-13-4 (Parts Catalog).
TO 33D5-12-13-501 (Modification of Transmitter).

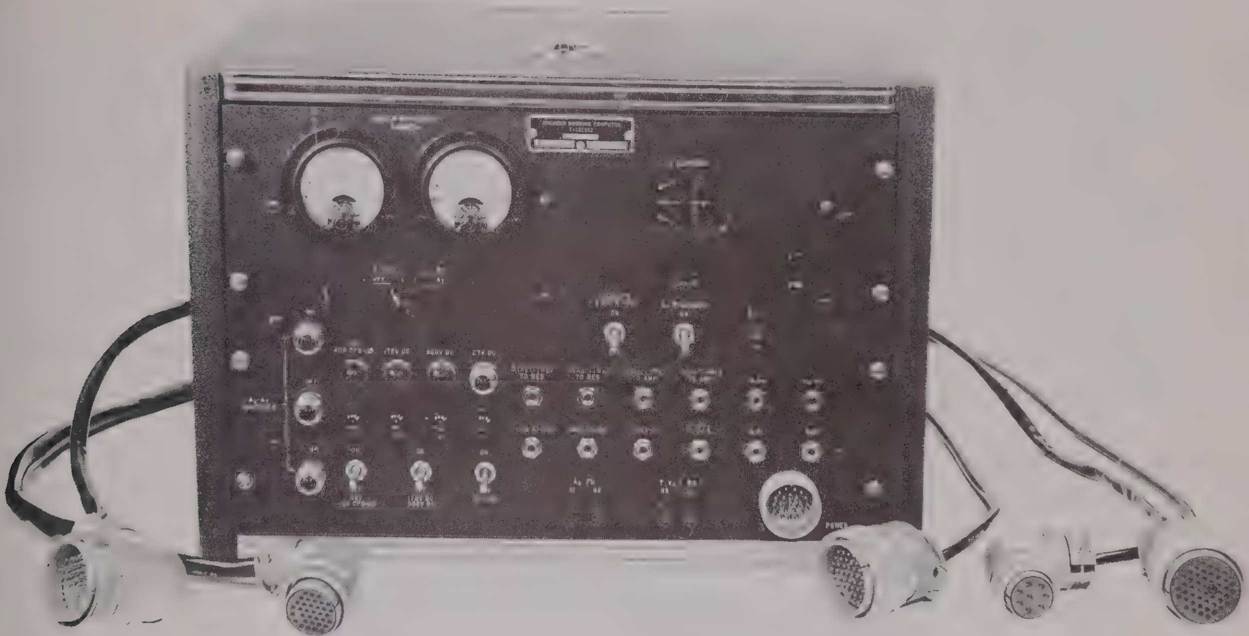
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Transmitter, Dummy T.A.S. and ALT. (Sperry T-101024)		7CAC-365350	5-1/2	9-3/4	5-3/4	4.4

BOMBING COMPUTER ANALYZER
Part No. T-101052
(Sperry Gyroscope Company)



FUNCTIONAL DESCRIPTION:

A portable test instrument used to test the bombing release computer unit, a major component of various computer systems. The analyzer is designed to simulate system operating conditions during tests on the bombing computer. It serves as a junction between the computer and the power supply, simulating the true heading signal supplied to the computer during system operation. The analyzer provides a means for monitoring the servo error signals, the amplifier output currents, and the operation of several other circuit components. When testing the bomb release computer, the analyzer is used in conjunction with the Power Supply Junction Box T-101126 and the Component Resolver Tester Assembly T-101009.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: Signal voltages, simulating the action of the true heading transmitter, are fed from the analyzer transmitter synchros to the receiver synchros in the computer. These receiver synchros develop an error signal which is indicative of the difference in angular position between the rotors of the transmitter

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-038335		
PROCUREM'T INFO.:			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.2	
	- Electronics Test Equipment -	Sperry Part No. T-101052	

his project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U.S.A.

BOMBING COMPUTER ANALYZER
Part No. T-101052
(Sperry Gyroscope Company)

ELECTROMECHANICAL DESCRIPTION: (Continued)

and receiver synchros. This error signal is fed back to the analyzer and can be observed with a vacuum tube voltmeter or oscilloscope. The error signal is also fed to an amplifier, and from the amplifier to a true heading motor in the computer. This motor is directly coupled to a synchro, resulting in the same angular orientation as the transmitter synchros in the analyzer. When the rotor of the receiver synchro "balances-out", the currents in the field coils of the motor are equal and may be checked on the ammeters of the analyzer. Similar servo loops permit the checking of other bombing computer circuits.

Power Supply: Electrical power for operating the analyzer test equipment is furnished by the computer system under test.

MANUFACTURERS' OR CONTRACTORS' DATA:

Sperry Gyroscope Company, Division of the Sperry Corporation, Great Neck, Long Island, New York.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 33D5-5-20-1 (Operation and Service Instructions).

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock (USAF) Numbers (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Bombing Computer Analyzer Sperry Part No. T-101052		7CAC-038335	14	21-3/8	15	25

AZIMUTH COMPUTER TESTER

Part No. T-101061
(Sperry Gyroscope Company)

FUNCTIONAL DESCRIPTION:

A portable special purpose test instrument designed to set up and test the azimuth computer. It is used to check the gimbal displacement, clutch operation, limit springs, servo operation, and the roll correction angle. The tester can be used on azimuth computers having either single or two-speed roll servos.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The tester supplies four different synchro signals, simulating various units of the K type Bombing Navigational Computer System. Two known variable quantities of roll data are sent to the azimuth computer by adjusting the roll and sight angle knobs of the tester. These two quantities, roll line of sight and pitch corrected sighting angle, represent known quantities of a spherical triangle which the computer solves. The solution is then returned to the tester

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-802200		
PROCUREM'T INFO.:			
PROCUREM'T COG.:	DESIGN COG.: Commercial		
F.I.I.N.:	FUNCTIONAL CLASS. NO.: 10.4.2		
	- Electronics Test Equipment - Sperry Part No. T-101061		

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

AZIMUTH COMPUTER TESTER

Part No. T-101061

(Sperry Gyroscope Company)

ELECTROMECHANICAL DESCRIPTION:

through a roll correction synchro where the angle can be read on the roll correction dial. This dial is rotated until a null is indicated on a vacuum tube voltmeter plugged into the V. T. V. M. jack.

Power Supply: Electrical power requirements of the tester are supplied by Power Supply Junction Box T-101126.

MANUFACTURERS' OR CONTRACTORS' DATA:

Sperry Gyroscope Company, Great Neck, Long Island, New York.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 33D5-5-25-1 (Operation and Service Instructions).

TO 33D5-5-25-4 (Parts Catalog).

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Azimuth Computer Tester (Sperry Part No. T-101061)		7CAC-802200	11	20	15-1/2	40

DUMMY RADAR FIXTURE
Part No. T-101101
(Sperry Gyroscope Company)

FUNCTIONAL DESCRIPTION:

A portable operational level tool used to check the radar Inter Communication Equipment tie-in to the A-1A Bombing Navigational Computer. The fixture simulates radar current loads, indicating through lights and jacks whether the proper working loads exist.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: Seventeen lights, connected to the computer amplifier, primary control, or polar converter, indicate that the correct signals are being sent from the computers to the radar. In several of the individual circuit elements there is a resistor whose function is to simulate the loads present in the radar. Four jacks are directly connected to the corresponding circuits of the computer amplifier, primary control, or polar converter, and two jacks are connected in parallel to the synchro in the dummy radar fixture. This synchro is used to balance the load impedance so that any roll or pitch correction is recorded. When the synchro signal selector is in the radar A_T position, it ties in A_T of the true heading trans-

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-291659		

PROCUREM'T INFO.:
PROCUREM'T COG.: DESIGN COG.: Commercial
F.I.I.N.: FUNCTIONAL CLASS. NO.: 10.4.2

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A

DUMMY RADAR FIXTURE
Part No. T-101101
(Sperry Gyroscope Company)

ELECTROMECHANICAL DESCRIPTION: (Continued)

mitter with the stator of a second synchro. In the $\theta + \delta$ position, it ties the stator to the differential synchro of the periscopic bombsight stabilizer and the quiet ground of the computer amplifier. In the slant range position, the tie-in is between R_s synchro of the polar radar and the stator of the second synchro. The rotor of the synchro is connected directly to the synchro signal jack and ground. The DC volt selector provides direct connection from the polar converter to the DC volts jack and ground. All other jacks are used to check voltage variations directly from the prime equipment.

Power Supply: Supplied by the units under test.

MANUFACTURERS' OR CONTRACTORS' DATA:

Sperry Gyroscope Company, Division of Sperry-Rand Corporation, Great Neck, Long Island, New York; Contract AF33(038)14787.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 33D5-5-49-1 (Operation and Service Instructions).
TO 33D5-5-49-4 (Illustrated Parts Breakdown).
TO 33D5-5-49-501 (Modification).
TO 33D5-5-49-502 (Modification).

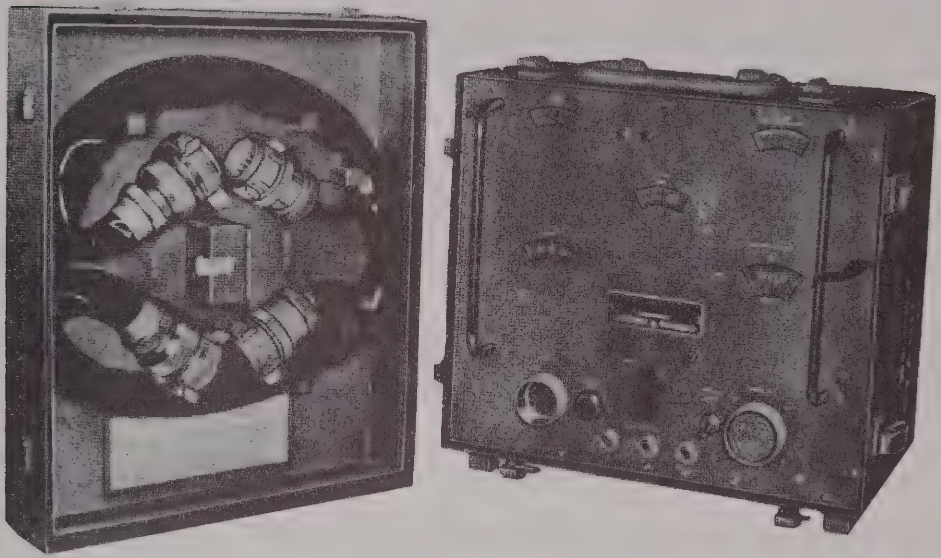
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Dummy Radar Fixture (Sperry T-101101)	Metal	7CAC-291659	8	13-3/4	16-3/8	19

STABILIZATION DATA REPEATER
Part No. T-101153
(Sperry Gyroscope Company)



FUNCTIONAL DESCRIPTION:

A portable field level tool used to replace the vertical periscope during a system test of the type A-1A Bombing Navigational Computer. The unit receives information from the periscopic bombsight stabilizer and the polar converter and it displays this information on dials. The test fixture displays fine and coarse readings of azimuth and roll from the stabilizer; and pitch corrected sighting angle, and sighting angle (coarse) from the polar converter.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The azimuth repeater circuit consists of two synchro control transformers and the azimuth DC servo motor. The azimuth motor in the repeater is driven by the periscope azimuth amplifier in the stabilization amplifier unit. A limiter system is also incorporated.

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-788580		
PROCUREM'T INFO.:			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.2	
	- Electronics Test Equipment -		Sperry T-101153

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A

STABILIZATION DATA REPEATER
Part No. T-101153
(Sperry Gyroscope Company)

ELECTROMECHANICAL DESCRIPTION: (Continued)

The roll and pitch repeater circuits consist of two synchro control transformers, a synchro motor, a pitch roll motor, and a limiter system. The sighting angle-pitch/roll motor in the repeater is driven by the pitch amplifier in the stabilizer amplifier unit.

The "Pitch/Roll" switch provides a selection between the periscope pitch sighting angle servo loop and the periscope roll servo loop. The value of the sighting angle is determined by rotating the "Sighting Angle" control until a voltage null is obtained.

Power Supply: 115 volts, AC, 400 cycles per second regulated; 26 volts, AC, 400 cycles per second nonregulated; 27 volts, DC; 300 volts, DC; all are supplied from the stabilization amplifier unit of the type A-1A Bombing Navigational Computer.

MANUFACTURERS' OR CONTRACTORS' DATA:

Sperry Gyroscope Company, Division of the Sperry-Rand Corporation, Great Neck, Long Island, New York; Contract AF 33(038)14787.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 33D5-5-56-1 (Operation and Service Instructions).
TO 33D5-5-56-4 (Illustrated Parts Breakdown).

SHIPPING DATA:

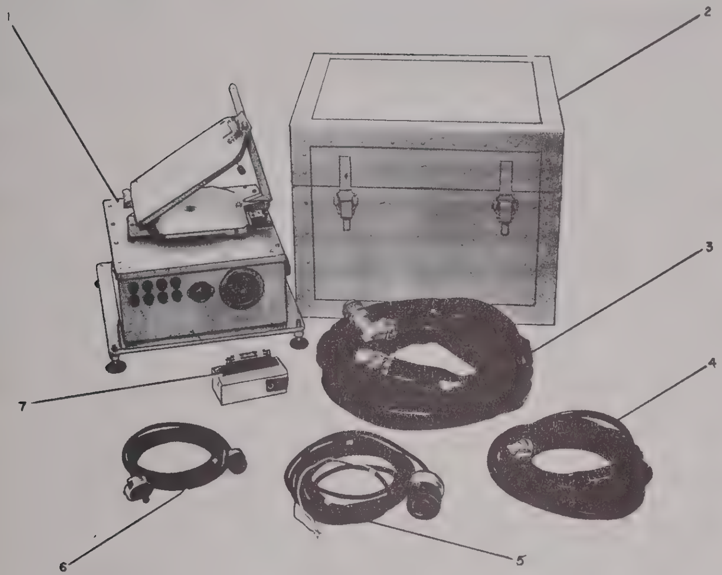
No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

STABILIZATION DATA REPEATER
Part No. T-101153
(Sperry Gyroscope Company)

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Stabilization Data Repeater (Sperry T-101153		7CAC-788580	13	14-3/4	11-3/4	27
	Including:						
1	Cover						
1	Cable (Sperry T-101153-903)						
1	Cable (Sperry T-101153-904)						
1	Spare Lamp Box						

TURNTABLE-COMPUTER PORTABLE
Part No. 1,000,005
(Sperry Gyroscope Company)



1. Portable turntable
2. Transit case
3. Interconnection cable
4. Interconnection cable
5. 115v, 400 cps, power cable
6. 115v, 60 cps, power cable
7. Spirit Level

FUNCTIONAL DESCRIPTION:

A portable constant speed turntable used in conjunction with the Optical Tester Sight and System Analyzer to perform a system test of the A-4 Computing Sight. The turntable supports the computer of the sight being tested while rotating at a constant speed. It may be rotated in a level plane or while tilted at 30 degree or 45 degree angles. Rotation can be either clockwise or counterclockwise through 360 degrees at rates of 5, 40, or 120 mils per second.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Constant Speed Motor: A synchronous induction motor which contains two pairs of windings. The motor rotates at constant speeds of 4000 or 12,000 revolutions per minute depending upon which pair of windings is connected to the power source.

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-901520		
PROCUREM'T INFO.:			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.2	
	- Electronics Test Equipment -	Sperry Part No. 1,000,005	

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TURNTABLE-COMPUTER PORTABLE
Part No. 1,000,005
(Sperry Gyroscope Company)

ELECTROMECHANICAL DESCRIPTION: (Continued)

Gear Train Assembly: The gear train assembly transmits the output of the constant speed motor to the turntable shaft which drives the rotating table. The gear train consists of a 100:1 reduction worm wheel mesh, a 4:1 reduction mesh, a 2:1 reduction mesh, a shift clutch, a 16:15 reduction mesh, and another 100:1 reduction worm wheel mesh at the input to the turntable shaft.

Rate Selection: The setting of the speed selector switch determines the rate of the rotating table, permitting rates of 5, 40, or 120 mils per second, or turntable speeds of 0.047, 0.375, and 1.124 revolutions per minute respectively.

Heaters: Two 250 watt heaters are controlled by a thermostat, set to open the circuit to the heaters when the temperature inside the turntable rises to 10°C. (50°F.).

Power Supply: 115 volts, AC, single phase, 400 cycles per second and 115 volts, AC, single phase, 60 cycles per second.

MANUFACTURERS' OR CONTRACTORS' DATA:

Sperry Gyroscope Company, Division of Sperry Corporation, Great Neck, Long Island, New York.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 33D5-13-11-1 (Operation and Service Instructions).
TO 33D5-13-11-4 (Parts Catalog).

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
Sperry Part No. 1,000,005- Electronics Test Equipment -						

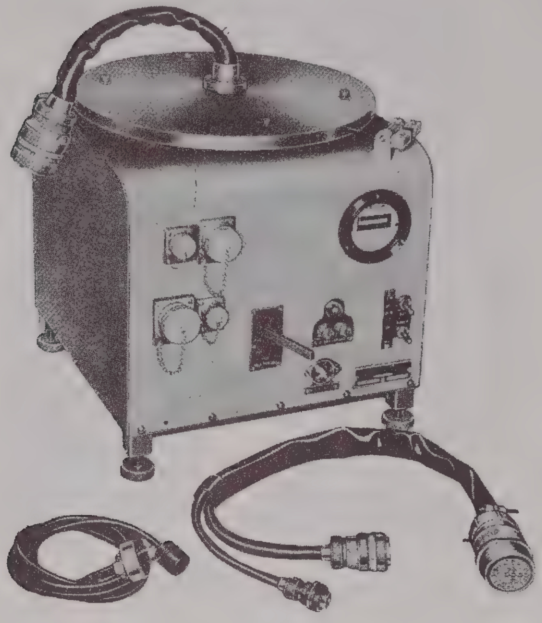
TURNTABLE-COMPUTER PORTABLE
Part No. 1,000,005
(Sperry Gyroscope Company)

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Turntable-Computer Portable Sperry Part No. 1,000,005		7CAC-901520	14-3/4	19-3/4	18	84
1	Power Cable Assembly Sperry Part No. 717702						
1	Power Cable Assembly Sperry Part No. 717701						
1	Interconnecting Cable Assembly Sperry Part No. 677920						
1	Level Sperry Part No. 854629						
1	Interconnecting Cable Assembly Sperry Part No. 677921						

- Electronics Test Equipment - Sperry Part No. 1,000,005

TURNTABLE-COMPUTER
Part No. 1,000,014
(Sperry Gyroscope Company)



FUNCTIONAL DESCRIPTION:

A portable precision tool which provides a three-speed, reversible, circular table for the support of the Tilt Fixture (T-100878), or the Computer Tilter (1000011). The tilt fixture or computer tilter, in turn, support the computers incorporated in the types A-1, A-4, and A-7 Gyro Computing Sight. The turntable provides rotation at set rates, while the tilting fixtures provide set displacements from the horizontal. Such rotations and displacements simulate the rotations, and attitudes the computer experiences when mounted in an aircraft. During these movements, inputs are supplied to the unit under test and the outputs are measured for conformity to tolerances.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: A slip ring assembly is attached to the drive shaft of the circular table, inside the housing, and terminates in a slip ring cable which projects through the circular table to provide connections for the unit being tested. Two brush assemblies are fitted against the slip rings and are connected to the harness which terminates in the four receptacles mounted on the front of the turntable.

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-901625		
PROCUREM'T INFO.:			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10, 4, 2	
	- Electronics Test Equipment - Sperry Part No. 1,000,014		

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TURNTABLE-COMPUTER
Part No. 1,000,014
(Sperry Gyroscope Company)

ELECTROMECHANICAL DESCRIPTION: (Continued)

These receptacles provide for interconnecting the unit under test on the turntable with external analyzing equipment. Switches on the front panel of the turntable control input power and direction of rotation of the turntable drive motor. A gear train, driven by a split phase synchronous motor, causes the circular table to revolve at speeds selected by a shifter lever on the front of the turntable. A leaf sector is provided on the turntable to facilitate a computer test where the computer must be rotated through a 180-mil sector. When the leaf sector is in the operating position a safety switch cuts off the power to the drive motor. A frequency meter on the front panel of the turntable indicates the frequency of the input power supply.

Meter Range: 58 to 62 cycles per second in increments of one-half cycle.
Power Supply: 115 volts, AC, 60 cycles per second, single phase.

MANUFACTURERS' OR CONTRACTORS' DATA:

Sperry Gyroscope Company, Great Neck, Long Island, New York.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 33D5-13-12-1 (Operation and Service Instructions).
TO 33D5-13-12-4 (Parts Catalog).

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Turntable-Computer Sperry Part No. 1,000,014	Metal	7CAC-901625	19	14-3/4	19-1/2	55
1	Power Cable						
1	Cable Adapter Assembly						

TEST SET, TELEPHONE TS-816/U

FUNCTIONAL DESCRIPTION:

A portable, general purpose instrument used in locating low insulation resistance between wires in pulp- and paper-insulated cables. A buzzer tone, by means of an exploring coil, determines cable insulation defects.

RELATIONSHIP TO OTHER EQUIPMENT:

One BA-15-A, two BA-27, fifteen BA-63 Batteries are required but not supplied.

ELECTROMECHANICAL DESCRIPTION:

Power Supply: 630 volts, DC.
Direct Current Range: 0 to 5 amps.
Resistance Range: 0 to 2 megohms.
Buzzer Tone: 500 cycles per second.

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			Standard
STOCK NOS.			3F4325-816

PROCUREM'T INFO.:
PROCUREM'T COG.: Army   DESIGN COG.: Army
F.I.I.N.: 6625-025-3827   FUNCTIONAL CLASS. NO.: 10.4.3

TEST SET, TELEPHONE TS-816/U

MANUFACTURERS' OR CONTRACTORS' DATA:

Maspeth Telephone and Radio, 142 Ashland Place, Brooklyn, New York; Order No. 38270-PH-53-34; Approximate Cost per Unit, $129.17.

TUBE COMPLEMENT:

None

REFERENCE DATA AND LITERATURE:

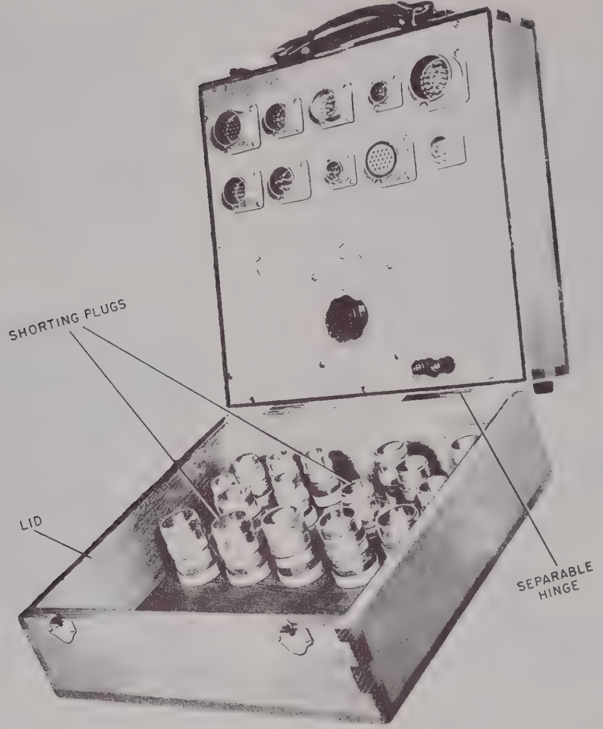
EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Test Set, Telephone, TS-816/U Including Cable Assemblies:		3F4325-816				
1	Maspeth B-200-490		3E4000-262				
1	Maspeth C-200489		3E4000-261				

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
	Test Set, Telephone TS-816/U					

CABLE TESTER
Part No. T-100767
(Sperry Gyroscope Company)



FUNCTIONAL DESCRIPTION:

A portable, general purpose tester used to check the interconnecting cable harness of Automatic Pilots type E-4 and A-12D. The tester is designed specifically to detect shorted or broken leads in installations where the equipment has previously been in operation. The test set is also capable of detecting interchanged or crossed leads in a limited number of conditions during installation of the equipment. The unit is designed so that it may be used in conjunction with any megger, high potential tester or continuity tester. Test results are indicated on external test equipment.

RELATIONSHIP TO OTHER EQUIPMENT:

An auxiliary shorting plug and adapter cable kit, an ohmmeter and a high potential tester or megger are required, but not supplied, for testing.

	AIR FORCE	NAVY	ARMY
TYPE CLASS.		Standard	
STOCK NOS.	7CAC-802410	R88TO951-010-000	
PROCUREM'T INFO.:			
PROCUREM'T COG.: Navy		DESIGN COG.: Commercial	
F.I.I.N.: 6625-521-9960		FUNCTIONAL CLASS. NO.: 10.4.3	
	- Electronics Test Equipment -		Sperry T-100767

CABLE TESTER
Part No. T-100767
(Sperry Gyroscope Company)

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The tester consists of 10 wired AN receptacles, a selector switch, and tip jacks for test meter connection. Rotation of the selector switch successively isolates each cable lead at one end while a shorting plug shorts all leads at the other end. The tip jacks are thus successively connected across each lead versus all remaining leads for continuity and short tests. During short circuit tests the shorting plug is not used.

Power Supply: None.

MANUFACTURERS' OR CONTRACTORS' DATA:

Sperry Gyroscope Company, Division of Sperry Rand Corporation, Great Neck, Long Island, New York; Contract No. N383s-32925; Approximate Cost per Unit, $1279.00.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE.

TO 17-15KB-2 Operation and Service Instructions.

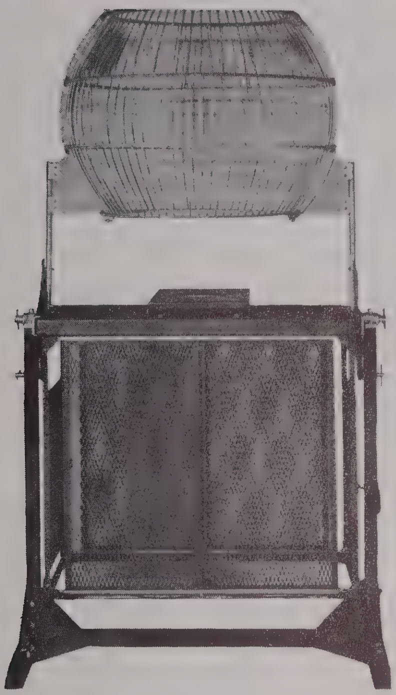
EQUIPMENT SUPPLIED:

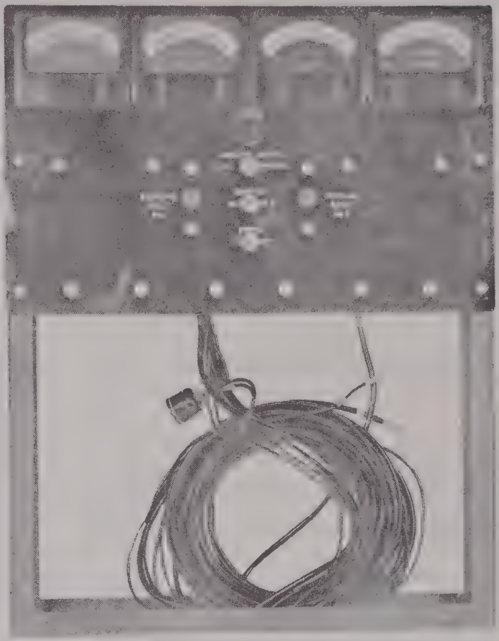
Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Cable Tester Sperry T-100767	wood	7CAC-802410 R88T0951-010-000	8	13-3/4	13-3/4	
8	Cable						
16	Shorting Plug						

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
	Cable Tester Sperry T-100767					

TEST BENCH ASSEMBLY AN/APM-12
(TEST SET, RADAR, AN/APM-12)





FUNCTIONAL DESCRIPTION:

An airborne, general purpose equipment, used to facilitate efficient servicing for radar systems during depot maintenance. Indication is on four meter dials, three in volts and one in amperes.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: This assembly consists of a strand, racks, antenna guard, and cages for mounting the components of the system being tested. Interlock switches are provided on the cages for protection from high voltages encountered in radar systems. A switchboard with the four meters for voltage and current measurements is furnished. This switchboard may be mounted permanently on a test bench.

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.	Limited Standard		
STOCK NOS.	1690-327212700		3F3938-12
PROCUREM'T INFO.: USAF Spec. No. ARL-184			
PROCUREM'T COG.: USAF		DESIGN COG.: USAF, Arm	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.4	
	- Electronics Test Equipment -		AN/APM-12

is project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TEST BENCH ASSEMBLY AN/APM-12
(TEST SET, RADAR, AN/APM-12)

ELECTROMECHANICAL DESCRIPTION: (Continued)

Power Supply: Identical to the power required for the radar system under test.

Frequency Range: 1550 to 11,000 megacycles per second.

Meter Ranges:

Switchboard SB-9/APM-12: 0 to 20,000 volts DC.
0 to 50 volts DC.
0 to 150 volts AC.
0 to 200 amperes DC.

MANUFACTURERS' OR CONTRACTORS' DATA:

Harlan Planning Mills and Cabinet Company, USAF Order No. 629-DAY-44, 23 November 1944.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 16-30APM-12-2 (Operating Instructions).
TO 16-55-243 (Spare Parts List).

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Test Bench Assembly AN/APM-12, Including:		1690-327212700 3F3938-12				516 (complete)
1	Switchboard SB-9/APM-12		7CAC-787840 3H4112-9	4	16	26	35
1	Stand MT-235/APM-12		7CAC-738140 3F3915.1-235	28	44	41	50
1	Rack MT-232/APM-12		7CAC-680780 3F3773-232	30	45	80	45

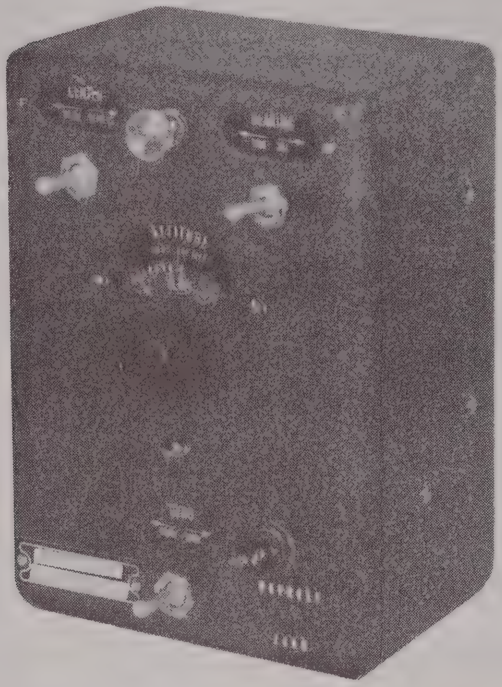
(Continued)

TEST BENCH ASSEMBLY AN/APM-12
(TEST SET, RADAR, AN/APM-12)

EQUIPMENT SUPPLIED: (Continued)

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Over-all Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Rack MT-233/APM-12		1690-326834505 3F3773-233	30	45	80	60
1	Antenna Guard MX-159/APM-12		7CAC-390755 3F3989-159		32 dia.		15
1	Adapter Mounting MT-302/APM-12		7CMD-ES-D5201A 2Z6763-302	8	20	20	20
2	Cage CW-42/APM-12		7CHM-ES-F24335-A 3F2510-42	36	36	36	100
1	Adapter Mounting MT-354/APM-12		7CMD-ES-D52207 2Z6763-354	1/2	14	20	3
1	Multiplier MX-421/U		7CAC-589200 3F3989-421	14-1/2	3-1/2		3
1	Cord CG-54/U		1600-132336058 1F430-54				1
3	Transmission Line, CG-164/U (Flexible "X" Band Wave-guides		1600-299539910 N16-W21991-1269 2Z10006-164. 18	18			18
1	Rack MT-234/APM-12		1690-326834510 3F3773-234	30	45	80	60

CONTROL UNIT C-412/APS-23
(CONTROL, RADAR SET, C-412/APS-23)



FUNCTIONAL DESCRIPTION:

A portable, special purpose unit used to provide operating controls in place of those normally provided by a bombing and navigational computer in testing a radar set. Switches and potentiometer in the unit cause indications on the radar set under test. This unit is used in organizational, field and depot testing.

RELATIONSHIP TO OTHER EQUIPMENT:

This unit is used in testing Radar Sets AN/APS-23, AN/APQ-24 and 45, and Optical Radar Bombing Navigational System K-3A, 4A.

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: This unit contains switching circuits for off-set presentation control and gyroscope control, and a potentiometer circuit for setting the altitude.

Power Supply: 115 volts, AC, 400 cycles per second, single phase, 28 volts, DC.

Frequency Range: Search: 9375 megacycles per second, fixed.
Beacon: 9310 megacycles per second, fixed.

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-224160		
PROCUREM'T INFO.:	USAF, Spec. C-7146, dated 1 May 1947		
PROCUREM'T COG.:	USAF	DESIGN COG.:	USAF, Arm.
F.I.I.N.:		FUNCTIONAL CLASS. NO.:	10.4.4
	- Electronics Test Equipment -		C-412/APS-23

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

CONTROL UNIT C-412/APS-23
(CONTROL, RADAR SET, C-412/APS-23)

MANUFACTURERS' OR CONTRACTORS' DATA:

Western Electric Company, 195 Broadway, New York 7, New York; Contract No. AF 33(038)ac-17011, 20 May 1948; Approximate Cost per Unit, $1800.00; Contract No. AF 33(038)27869, 16 June 1952; Approximate Cost per Unit, $500.00; Western Electric Spec. No. GS-15757.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 16-30APS23-2 (Maintenance Instructions).

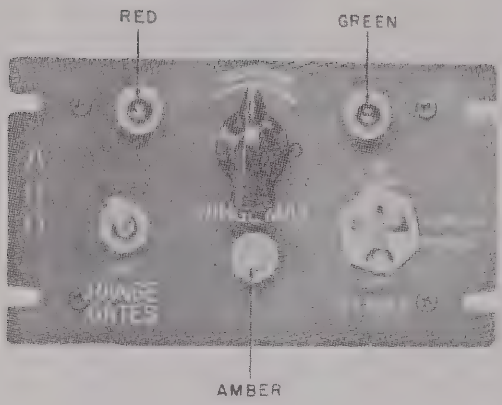
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Control Unit C-412/APS-23 (Complete)	Metal	7CAC-224160	10-1/2	5-1/2	4	6

RADAR SET CONTROL C-637/APG-30



FUNCTIONAL DESCRIPTION:

A portable, special purpose unit used in operating a radar set and testing the control of the set by substitution. It is especially useful in facilitating the operational testing of the set by taking over control outside the aircraft in which the set is installed. In this way, control and instrument observation can be accomplished at the same location. This unit contains all radar controls and indicators on its panel. These consist of a switch for OFF POWER, STANDBY MANUAL, and ON RADAR, a continuous adjustment for range gating, a range gate OUT switch, and amber pilot light to indicate stand-by, a green pilot light to indicate that the radar is on, and a red pilot light to indicate when the radar has locked-on to a target. This unit is used at all maintenance levels.

RELATIONSHIP TO OTHER EQUIPMENT:

Used to test Radar Set AN/APG-30, Fire Control System MA-2, and Type B-4 Tail Defense.

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-224133		
PROCUREM'T INFO.: Spec. R16R87 (Aer) & Am. 1 dated 27 January 1949			
PROCUREM'T COG.: Navy		DESIGN COG.: Navy, BuAer	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.4	
	- Electronics Test Equipment -		C-637/APG-30

is project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

RADAR SET CONTROL C-637/APG-30

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: Switching, pilot indicator, relay, and interconnecting circuits are included.

Power Supply: 28 volts, DC, supplied by the power source. Power is switched, as required, to the radar set.

MANUFACTURERS' OR CONTRACTORS' DATA:

General Electric Company, Electronics Park, Syracuse, New York; Navy Contract NOa(s)51-1077 dated 11 March 1952; Approximate Cost per Unit, $23.23; Navy Contract NOa(s)52-935f dated 11 April 1952; Approximate Cost per Unit, $38.82.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 16-30APG30-3 (Maintenance Instructions).

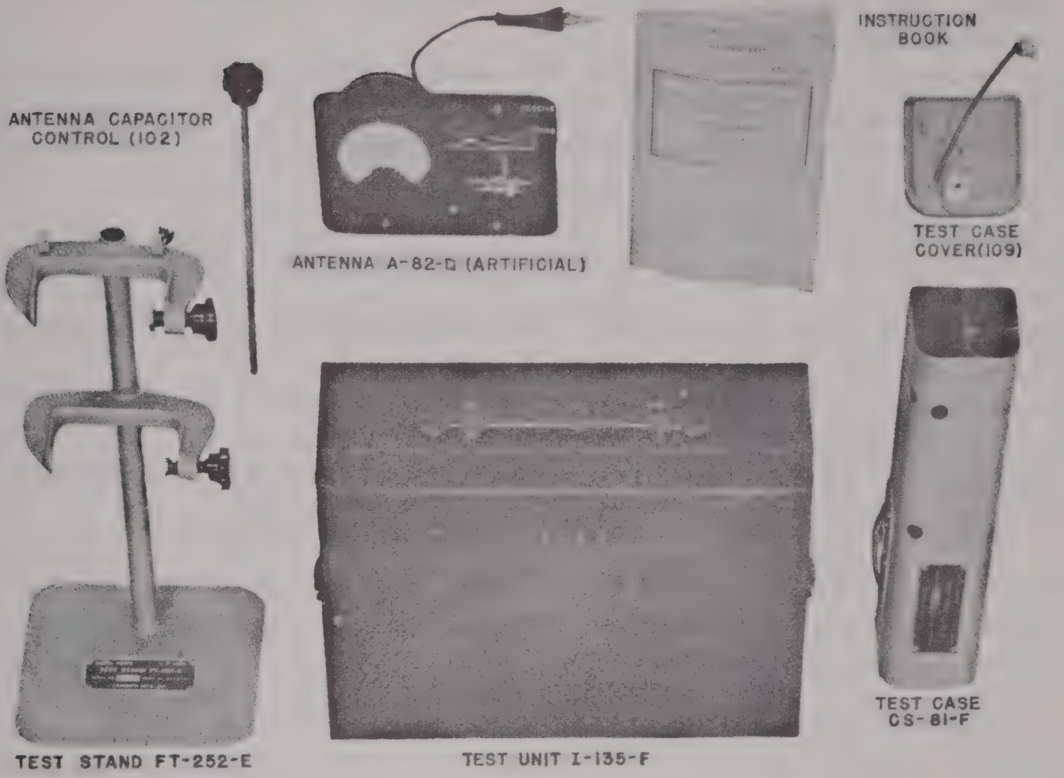
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Radar Set Control C-637/APG-30	Aluminum	7CAC-224133	3-3/8	6	3-7/8	1.5

TEST EQUIPMENT IE-17-F


ANTENNA CAPACITOR CONTROL (102)
ANTENNA A-82-D (ARTIFICIAL)
INSTRUCTION BOOK
TEST CASE COVER(109)
TEST STAND FT-252-E
TEST UNIT I-135-F
TEST CASE CS-81-F

FUNCTIONAL DESCRIPTION:

A portable, special purpose equipment used for testing and aligning a radio set, for testing the activity of its crystals, and for measuring the voltages of the batteries used to supply its power. This equipment consists of five components, three of which are electrically interconnected. A test case houses the chassis of the radio set for access to the alignment adjustment. A dummy antenna simulates the antenna of the radio set. This dummy antenna is tunable, and it incorporates an antenna current meter. A test stand mounts the dummy antenna and the test case. Access to the antenna tuning capacitor is provided by an extension rod and knob unit.

RELATIONSHIP TO OTHER EQUIPMENT:

This equipment is used in testing Radio Set SCR-536-F.

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.		F17-T-33161-1043	3F3927F
PROCUREM'T INFO.:	Spec. 71-1053 (SigC)		
PROCUREM'T COG.:	Army	DESIGN COG.:	Army, CSL
F.I.I.N.:		FUNCTIONAL CLASS. NO.:	10.4.4
	- Electronics Test Equipment -		IE-17-F

is project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TEST EQUIPMENT IE-17-F

ELECTROMECHANICAL DESCRIPTION:

Power Supply: Filament or A Supply: 1.5 volts, DC, supplied by one 1.5 volt Battery either BA-23 or BA-35.

Plate or B Supply: 90 to 105 volts, DC, supplied by two 45 to 52.5 volt Batteries either BA-26 or BA-36.

Intermediate Frequency: 455 kilocycles per second.

Audio Frequency: 1000 cycles per second.

Type of Transmission: AM, Voice.

Antenna Current Meter Range: 0 to 50 milliamperes, AC, (RF).

Multimeter Ranges:

Voltage: BA-37, 0 to 3 volts, DC. BA-38, 0 to 150 volts, DC. Audio Output, 0 to 60 volts, AC.

Current: BA-37, 0 to 600 milliamperes, DC. BA-38, 0 to 60 milliamperes, DC. Power Amplifier Plate Current, 0 to 15 milliamperes, DC. Crystal Activity (Test unit RF Oscillator grid current), 0 to 1.5 milliamperes, DC.

AF Modulating Voltage: 0.1 volt at 1000 cycles per second.

MANUFACTURERS' OR CONTRACTORS' DATA:

Shallcross Manufacturing Company, Collingdale, Pennsylvania; Army Order No. 13545-PH-48-77; Shallcross Part/dwg SK-752.

TUBE COMPLEMENT:

1 JAN-3S4, 1 JAN-1T4.

REFERENCE DATA AND LITERATURE:

TO 16-40IE17-5 (TM 11-311) (Instruction Book).

TO 16-40SCR536-5 (TM 11-235) (Instruction Book for Radio Sets SCR-536-A-F).

SHIPPING DATA:

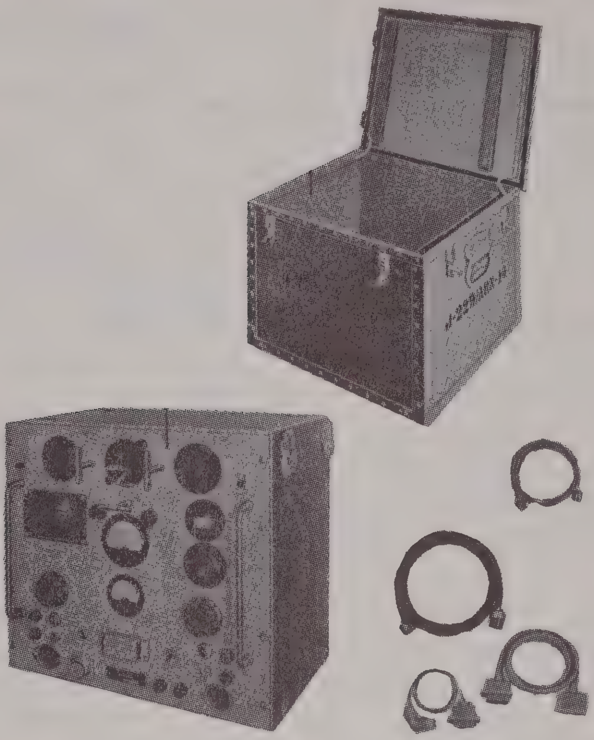
No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Over-all Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Test Equipment IE-17-F (Domestic Packed)	2.7	10-3/4	21-1/2	20-1/2	47

TEST EQUIPMENT IE-17-F

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Over-all Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Test Equipment IE-17-F Including:		F17-T-33161-1043 3F3927F				20 (without chest and batteries)
1	Chest	Plywood		9	19	17-1/2	
1	Artificial Antenna A-82-D (Inc. capacitor control)		2A275-82D	4-1/2	6-1/2	13	1.4
1	Test Case CS-81-F		2C7981F	12-3/4	3-3/4	4-3/8	1.8
1	Test Stand FT-252-E		3F3990E	13-1/4	7	7	3.1
1	Test Unit I-135-F		3F4470-135F	9-1/4	14-5/8	6	13.7
1	Set of Battery Leads						
1	Screwdriver						

JUNCTION BOX J-229/ARN-14
(CONTROL-INDICATOR, J-229/ARN-14)



FUNCTIONAL DESCRIPTION:
A portable, special purpose equipment which provides a point of interconnection for the wires from the various components of a radio receiving set when the equipment is on the test bench. A complete mock-up of an aircraft installation may be assembled on the test bench by connecting the various equipments to the junction box with the cables provided. The mock-up permits substitution of units suspected of being faulty for units known to be in good operating condition; thus faulty components may be isolated.

RELATIONSHIP TO OTHER EQUIPMENT:
The junction box is used in testing Radio Receiving Set AN/ARN-14.

ELECTROMECHANICAL DESCRIPTION:
Circuit Information: This equipment contains all necessary circuits to duplicate the

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-457006		2C780
PROCUREM'T INFO.: USAF Exhibit MCREE-337, 20 Feb. 1948; Am. 1, 22 Apr. 1949			
PROCUREM'T COG.: USAF		DESIGN COG.: USAF, C&N	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.4	
- Electronics Test Equipment -			J-229/ARN-14

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U.S.A.

JUNCTION BOX J-229/ARN-14
(CONTROL-INDICATOR, J-229/ARN-14)

ELECTROMECHANICAL DESCRIPTION: (Continued)

operation of a pilot's radio control panel plus switching, current and voltage variation potentiometers, transformers, and indicating circuits necessary to testing functions.

Power Supply: 26 ±6 volts, DC, negative side grounded. 115 volts ±10%, AC, single phase, 400 cycles per second.

Frequency Range: 108.0 to 135.9 megacycles per second, (for remote channel selection).

Input from Dynamotor DY-66A/ARN-14: 245 volts, DC, 240 milliamperes.

Aural Input Signal from Radio Receiver R-252A/ARN-14: 300 milliwatts.

Input Impedance presented to Aural Signal: 500 ohms.

Temperature Range: -40° C. to +55° C.

Humidity Range: 0 to 100% relative.

MANUFACTURERS' OR CONTRACTORS' DATA:

Bendix Radio Division, Bendix Aviation Corporation, Baltimore 4, Maryland; USAF Contract No. W33-038-ac-21113, 15 June 1949; Approximate Cost per Unit, $871.00.

Collins Radio Company, Cedar Rapids, Iowa; USAF Contract No. AF 33(038)14566, 23 June 1950; Approximate Cost per Unit, $591.00.

Schuttig and Company, Inc., Washington, D.C.; USAF Contract No. AF 33(038)-26128, 10 March 1952; Approximate Cost per Unit, $706.00.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 16-35J229-1 (Operation and Maintenance Instructions).
TO 16-35J229-4 (Parts List).
TO 16-35J229-13 (Maintenance Instructions).
TO 16-35J229-14 (Parts Catalog).

SHIPPING DATA:

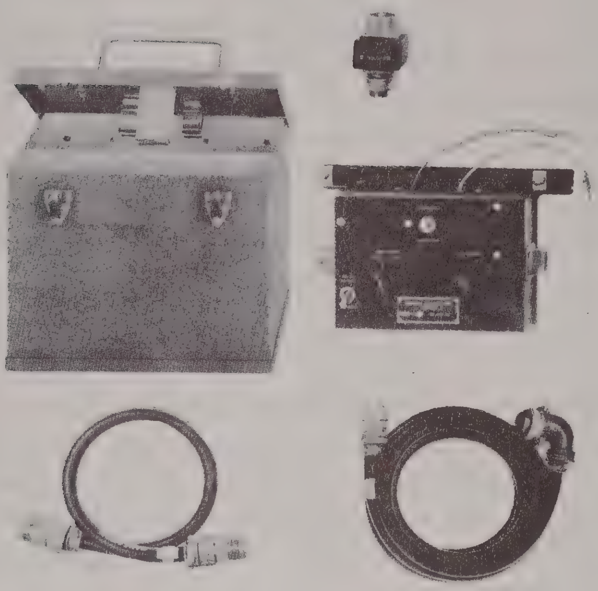
No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Over-all Dimensions (inches) H	W	D	Weight Packed (Lbs.)
1	Junction Box J-229/ARN-14 (Domestic Packed)	12.4	24-1/2	33	26-1/2	132

JUNCTION BOX J-229/ARN-14
(CONTROL-INDICATOR, J-229/ARN-14)

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Over-all Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Junction Box J-229/ARN-14	Aluminum	7CAC-457006 2C780	16	20-3/4	18-1/2	52
1	Case CY-662/ARN-14	Aluminum	7CAC-176669-5 2Z1891-662	19-1/2	27	22	32
1	Special Purpose Cable Assembly CX-1325/U		7CAC-170270-1348 3E6000-1325-60	60 long			
1	Special Purpose Cable Assembly CX-1326/U		7CAC-170270-1342 3E6000-1326-60	60 long			
1	Power Cable Assembly CX-1550/U			120 long			
1	Power Cable Assembly CX-1551/U			120 long			

ADAPTER KIT MX-479/ARN-6



FUNCTIONAL DESCRIPTION:

A portable, special purpose equipment used to adapt general purpose test equipment for special purpose testing of components of a radio compass. It is used with other test equipment for field and depot testing the operation of loop assembly drive motors, loop driver autosyns, and pilots' and navigators' indicators, and for orienting loops when setting in radio compass deviation correction. No indication is provided. A control adapter box comprises the main unit of the adapter kit. All controls are located on the front panel of this control adapter box. These controls consist of a push-button switch for momentarily zeroing an external vacuum tube voltmeter at any time during operation, a selector switch for low or high impedance winding loop drive motor current indication on the vacuum tube voltmeter, a two-way variable control knob for controlling loop drive motor speed for either direction of rotation, and a toggle switch adapting internal circuitry for any one of three different loop assemblies. Two permanently fixed test leads are provided with AC voltage

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	1690-299578479		2Z5731-479
PROCUREM'T INFO.:	Spec. MIL-A-5731		
PROCUREM'T COG.:	USAF	DESIGN COG.:	USAF, C&N
F.I.I.N.:		FUNCTIONAL CLASS. NO.:	10.4.4
	- Electronics Test Equipment -		MX-479/ARN-6

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Betheada, Md. - Multilithed in U. S. A.

FUNCTIONAL DESCRIPTION: (Continued)

jacks at their ends. There is a cable connector at each end of the control adapter box. One of the cords included with the adapter kit provides a conenction between the test set used with the adapter kit and one of the cable connectors in the control adapter box. The other cord included with the adapter kit provides a connection between any one of the three loop assemblies and the other cable connector on the control adapter box. An adapter, which is also included with the adapter kit, connects directly to any one of four different indicators (pilots' or navigators') to adapt them for connection to a cord which is part of the test set used with the adapter kit. The base of the control adapter box is fitted with hasps which fasten to the hinge pins of the test set used with the adapter kit for convenient positioning on a test bench.

RELATIONSHIP TO OTHER EQUIPMENT:

This adapter kit is used in testing components of Radio Compass AN/ARN-6.

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: the control adapter box allows loop assemblies to operate from the 400 cycles per second voltage available from Test Set I-100-A or I-100-B, and to convert the vacuum tube voltmeter of either of these test sets to read loop drive motor currents. The associated cords and adapter provide the parts needed to complete the test circuitry.

Power Supply: None.

Operating Range: 0 to 50 milliamperes (Loop motor).

Accuracy: ±10% loop motor current.

Loop Motor Control: A 30° rotation of the control knob in either direction causes loop rotational speed of 8 to 11 degrees per second in that direction.

Full rotation of the control knob in either direction causes loop rotational speed of at least 45 degrees per second in that direction.

Range on External VTVM: 0 to 10 volts.

MANUFACTURERS' OR CONTRACTORS' DATA:

National Electrical Machine Shops, Silver Spring, Maryland; USAF Contract No. AF 33(038)25762.

Modulation Products Corporation, New York, New York; USAF Contract No. AF 33(038)13838; Approximate Cost per Unit, $125.00.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

AN 16-40I100-3 (Maintenance Instructions for I-100-A and I-100-B).
TO 16-55-393 (Spare Parts for MX-479/ARN-6).
TO 16-35MX479-21 (Modification of I-100-A Test Set for use with MX-479/ARN-6).
TO 16-40I100-21 (Instruction Book).

ADAPTER KIT MX-479/ARN-6

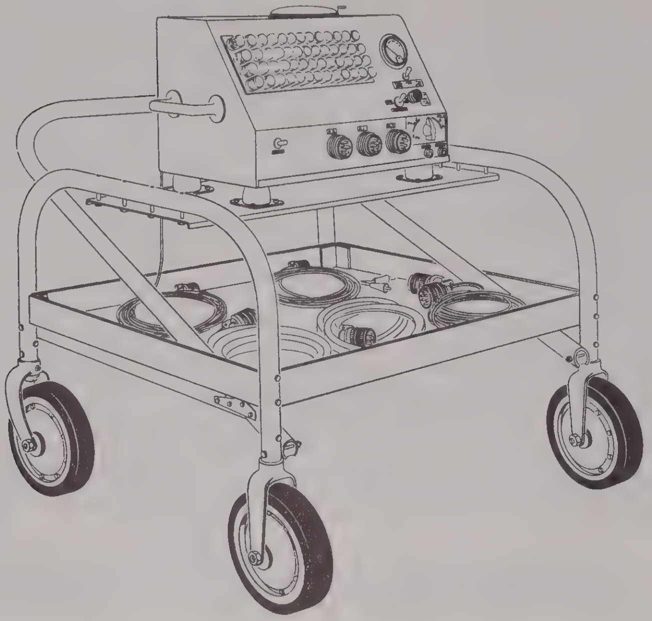
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Adapter Kit MX-479/ARN-6 Including:	Aluminum	1690-299578479 2Z5731-479	8-1/16	9-27/32	6-7/8	9.25
1	Control Adapter Box C-382/ARN-6	Aluminum	7CAC-002910-43 3F26209	5	8	2	3.00
1	Case CY-584/ARN-6	Aluminum	7CAC-176572-54 2Z1891-584	8-1/16	9-27/32	6-7/8	3.50
1	Adapter U-59/ARN		7CAC-222460 2Z302-59				0.25
1	Cord CX-1099/U		7CAC-170270-1352 3E6000-1099-24	24 long			1.00
1	Cord CX-931/U		7CAC-170270-1425 3E6000-931-120	120 long			1.50

ASSEMBLY, ROCKET TEST STAND
Part No. N-1703-500
(Northrop Aircraft, Incorporated)



FUNCTIONAL DESCRIPTION:

This assembly is used for testing continuity and stray voltages of the rocket firing electrical circuits of the F-89D aircraft. It is also used for testing the timing of the rocket firing intervalometer.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The assembly is connected to an auxiliary power supply and into the rocket firing circuits of the aircraft by means of cables which are included with the equipment. The panel has a bank of lamps which indicate continuity of the rocket firing circuits. Each circuit has a lamp which should light when that circuit is energized. An intervalometer timer is included to indicate rocket firing elapsed time. A voltmeter on the panel indicates stray voltages when all circuits are grounded.

When the continuity probe is connected, the panel lights indicate continuity of the firing pin circuit.

Power Supply: 115 volts, AC, 400 cycles per second, single-phase from aircraft under test or outside power source.

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-801353-55		
PROCUREM'T INFO.:			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.4	
		- Electronics Test Equipment -	Northrop N-1703-500

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U.S.A.

ASSEMBLY, ROCKET TEST STAND
Part No. N-1703-500
(Northrop Aircraft, Incorporated)

MANUFACTURERS' OR CONTRACTORS' DATA:

Northrop Aircraft, Inc., Hawthorne, California; Contract Nos. AF 33(038)1817, AF 33(600)6560, AF 33(600)22313, AF 33(600)26294; Approximate Cost per Unit, $3, 222.54.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

Northrop Aircraft, Incorporated, "Maintenance and Overhaul Tools and Equipment for F-89 Aircraft."

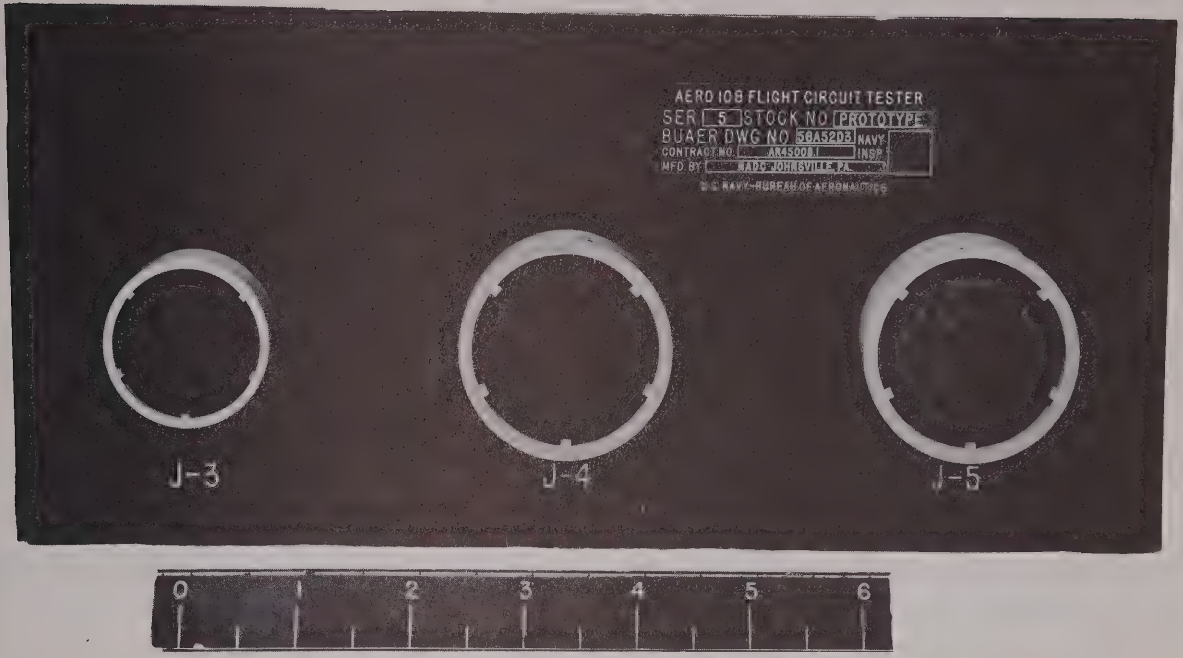
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Assembly, Rocket Test Stand (Northrop N-1703-500)	16.2				384

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Assembly, Rocket Test Stand (Northrop N-1703-500)	Plywood	7CAC-801353-55	52-1/2	39	48-1/8	
1	Cable, Power			720 long			

FLIGHT CIRCUIT TESTER AERO 10B


AERO 10B FLIGHT CIRCUIT TESTER
SER 5 STOCK NO PROTOTYPE
BUAER DWG NO 56A52D3
NAVY INSP
CONTRACT NO. AR45008.1
MFD. BY NADC JOHNSVILLE PA.
U.S. NAVY-BUREAU OF AERONAUTICS
J-3
J-4
J-5
0
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5
6

FUNCTIONAL DESCRIPTION:

A portable, special purpose equipment designed to check the operation of weapon control boxes such as Control Panel Aero 2B and Aero 3B prior to installation of a weapon for a mission. The tester is used to insure that every possible operation of the control box is functioning properly and that every required voltage is supplied at the proper pin connections. The tester is designed so that any operationally significant short to ground, short to adjacent wires, or interchange of wires between the control box and the weapon is indicated by panel lamps.

RELATIONSHIP TO OTHER EQUIPMENT:

Replacement for Flight Circuit Tester Aero 10A.

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The tester is basically composed of flasher, test and switching circuits. The flasher circuit consists of a flasher, a relay, a resistor and

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.		Standard	
STOCK NOS.		R94BUA-56A52	
PROCUREM'T INFO.: Spec 56A52D3 (BuAer), Dwg 56852			
PROCUREM'T COG.: Navy		DESIGN COG.: Navy, BuAer	
F.I.I.N.: 6625-589-8398		FUNCTIONAL CLASS. NO.: 10.4.5	
- Electronics Test Equipment -			Aero 10B

FLIGHT CIRCUIT TESTER AERO 10B

ELECTROMECHANICAL DESCRIPTION: (Continued)

a silicon diode. In the test procedure for each useful combination of switch settings of the control box under test there is a unique pattern of synchronized, flashing control box panel lamps. If the pattern does not develop as shown by the test procedure or if a panel lamp illuminates out of synchronism or continues to remain on or off, a malfunction is indicated. Three AN receptacles mounted on the front panel of the test set permit cable connection to the unit under test.

Power Supply: 28 volts, DC, 280 milliamps.

MANUFACTURERS' OR CONTRACTORS' DATA:

Naval Avionics Facility, Indianapolis, Indiana; Contract No. 46415-56; Approximate Cost per Unit, $75.00.

TUBE COMPLEMENT:

REFERENCE DATA AND LITERATURE:

Handbook of Operation, Repair and Maintenance Instructions with Illustrated Parts Breakdown, prepared by NADC Johnsville.

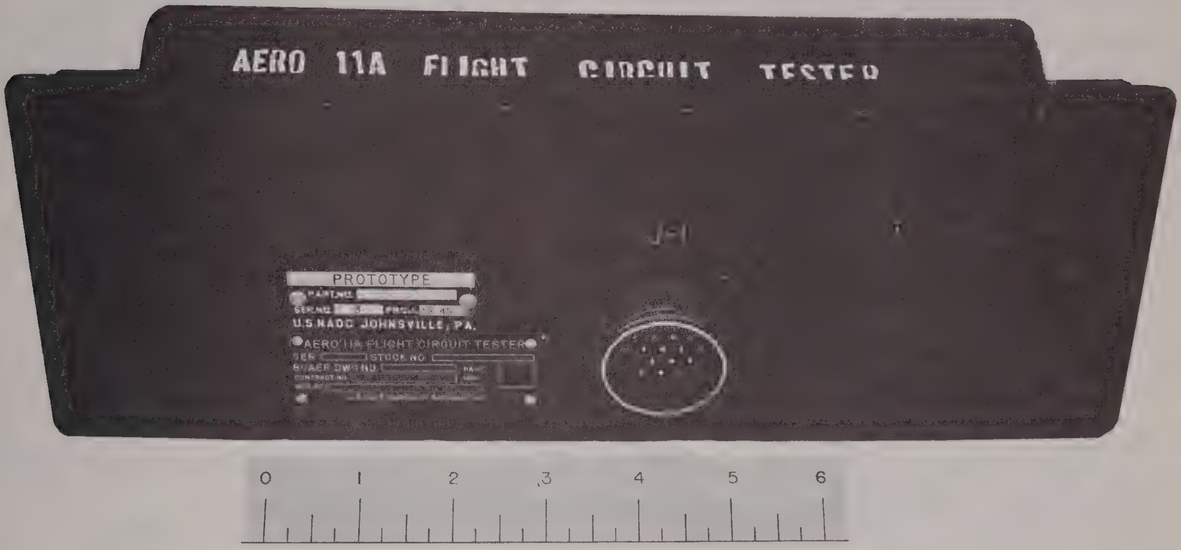
EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Flight Circuit Tester Aero 10B	metal	R94BUA-56A52				

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
	Flight Circuit Tester Aero 10B					

FLIGHT CIRCUIT TESTER AERO 11A


AERO 11A FLIGHT CIRCUIT TESTER
PROTOTYPE
U.S.NADC JOHNSVILLE, PA.
AERO 11A FLIGHT CIRCUIT TESTER
J-1
0
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FUNCTIONAL DESCRIPTION:

A portable, special purpose equipment designed to check the operation of weapon control boxes such as Control Panel Aero 2B, Aero 3B and T-208 prior to installation of a weapon for a mission. The tester is used to insure that every possible operation of the control box is functioning properly and that every required voltage is supplied at the proper pin connections. The tester is designed so that any operationally significant short to ground, short to adjacent wires, or interchange of wires between the control box and the weapon is indicated by panel lamps.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The tester is basically composed of flasher, test and switching circuits. The flasher circuit consists of a flasher, a relay, a resistor and a silicon diode. In the test procedure for each useful combination of switch

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.			
PROCUREM'T INFO.: Spec 56A6D3			
PROCUREM'T COG.: Navy		DESIGN COG.: Navy, BuAer	
F.I.I.N.: 6625-589-8399		FUNCTIONAL CLASS. NO.: 10.4.5	
- Electronics Test Equipment -			Aero 11A

FLIGHT CIRCUIT TESTER AERO 11A

ELECTROMECHANICAL DESCRIPTION: (Continued)

settings of the control box under test, there is a unique pattern of synchronized, flashing control box panel lamps. If the pattern does not develop as shown by the test procedure or if a panel lamp illuminates out of synchronism or continues to remain on or off, a malfunction is indicated. An AN receptacle mounted on the front panel of the test set permits cable connection to the unit under test.

Power Supply: 28 volts, DC, 280 milliamps.

MANUFACTURERS' OR CONTRACTORS' DATA:

Naval Avionics Facility, Indianapolis, Indiana; Contract No. 46710-56; Approximate Cost per Unit, $50.00.

TUBE COMPLEMENT:

REFERENCE DATA AND LITERATURE:

Handbook of Operation, Repair and Maintenance Instructions with Illustrated Parts Breakdown, prepared by NADC Johnsville.

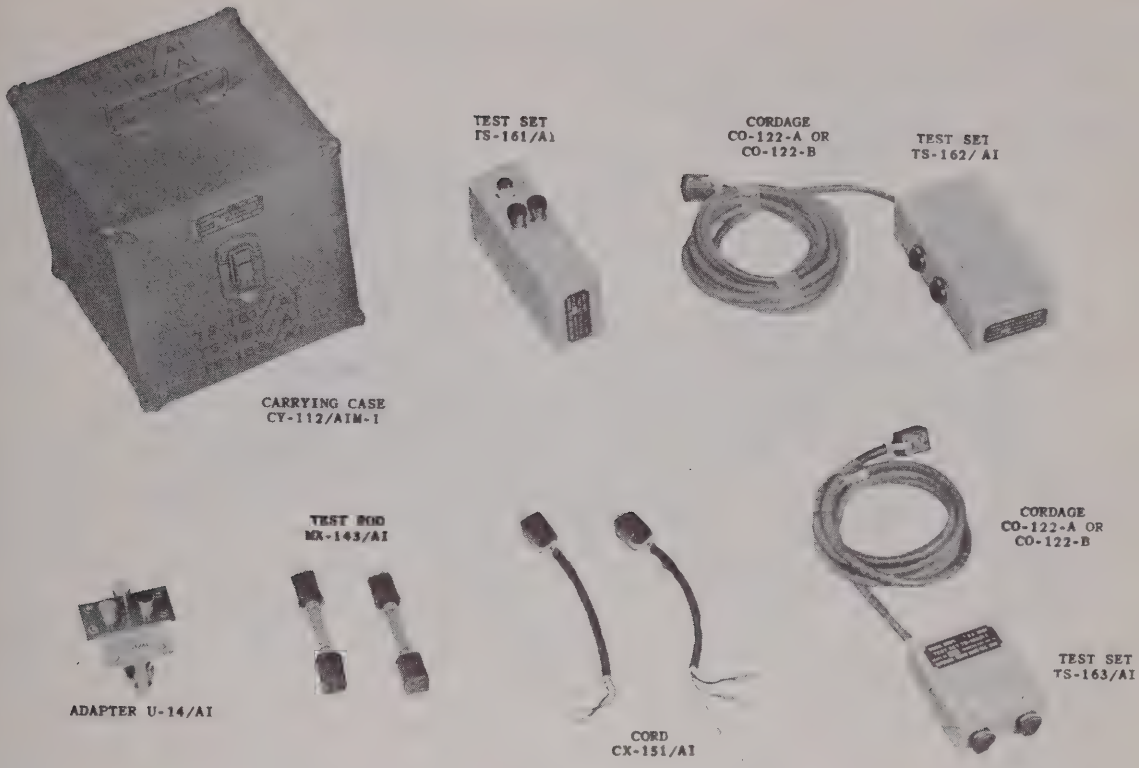
EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches) H	W	D	Weight (Lbs.)
1	Flight Circuit Tester Aero 11A	metal					

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches) H	W	D	Weight Packed (Lbs.)
	Flight Circuit Tester Aero 11A					

TEST EQUIPMENT AN/AIM-1


TEST SET
TS-161/AI
CORDAGE
CO-122-A OR
CO-122-B
TEST SET
TS-162/AI
CARRYING CASE
CY-112/AIM-1
TEST ROD
MX-143/AI
CORDAGE
CO-122-A OR
CO-122-B
ADAPTER U-14/AI
TEST SET
TS-163/AI
CORD
CX-151/AI

FUNCTIONAL DESCRIPTION:

A portable battery operated test equipment used to check the continuity of the conductors assembled on a tow rope and the wiring and operation of the interphone equipment components installed in the glider and tow plane.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Refer to separately nomenclatured equipment supplied items for a detailed description of each individual unit comprising the overall Test Equipment AN/AIM-1.

MANUFACTURERS' OR CONTRACTORS' DATA:

Jefferson-Travis Radio Manufacturing Corporation, New York 10, New York; Order No. 1107-DAY-44, Approximate Cost per Unit, $92.21.

	AIR FORCE	NAVY	ARMY
TYPE CLASS.	Standard		
STOCK NOS.	1690-327213250		3F3943-1
PROCUREM'T INFO.:			
PROCUREM'T COG.: USAF		DESIGN COG.: USAF, C&N	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.5	
- Electronics Test Equipment -			AN/AIM-1

his project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TEST EQUIPMENT AN/AIM-1

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 16-1-5 (Parts Control List).

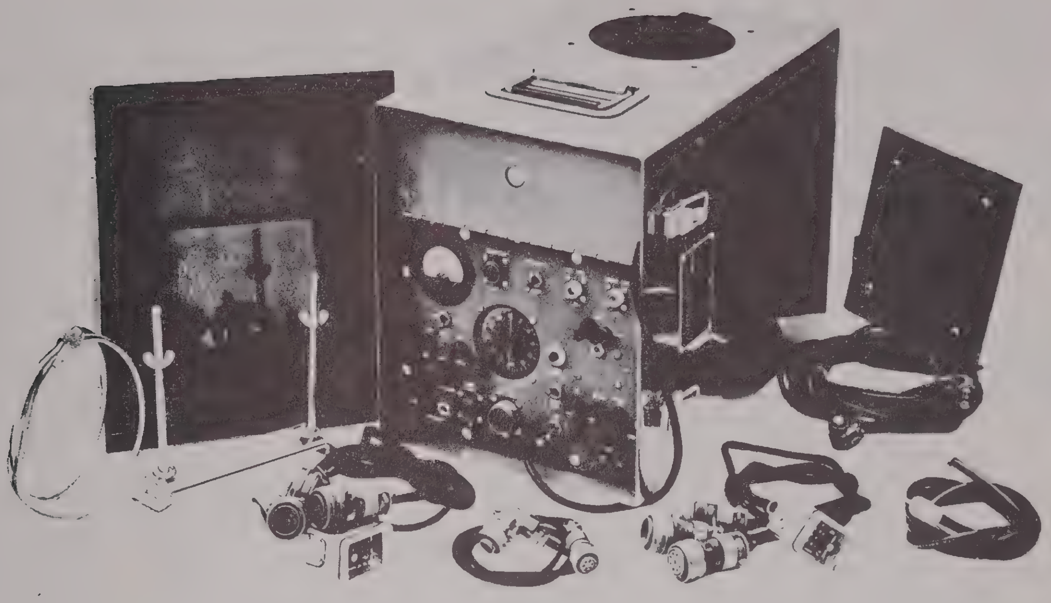
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Test Equipment AN/AIM-1 (Shelf Package)	0.32	8	8	8-3/4	8

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Test Equipment AN/AIM-1 including the following equipments:		1690-327213250 3F3943-1				
1	Test Set TS-161/AI		7CAC-801319-656 3F4325-161	6-5/6	3-5/8	1-7/8	1.0
1	Test Set TS-162/AI		7CAC-801319-658 3F4325-162	6	3-1/4	1-1/8	1.5
1	Test Set TS-163/AI		7CAC-801319-67 3F4325-163	2-3/4	3-3/8	1-3/8	1.5
1	Carrying Case CY-112/AIM-1	Wood	7CAC-176-555-15 3F2529-117	7-1/2	7-1/2	8	4.0
1	Adapter U-14/AI		3F3-14	1	1	4	0.06
2	Test Rod MX-143/AI		3F3989-143	3	3	3	0.19
2	Cord CX-151/AI		3E6000-151	8 long			0.06

TEST SET, RADIO AN/ARM-32



FUNCTIONAL DESCRIPTION:

A portable, general purpose equipment designed to test the sensitivity and accuracy of automatic direction finder components of Radio Receiving Set AN/ARN-41, AN/ARN-41A, AN/ARN-41B, AN/ARN-42, and AN/ARN-54. The test set performs the function of a test bench harness, a junction box, an operational meter, and a screen room. The simulated screen room is contained in a rear compartment of the test set.

RELATIONSHIP TO OTHER EQUIPMENT:

Similar to Test Set Radio Lear 2247. AN/ARM-32 is the overall nomenclature for Test Set, Radio TS-1062/ARM-32.

ELECTROMECHANICAL DESCRIPTION:

Power Supply: 28 volts, DC, 5 amps.

Frequency Range: 190 kilocycles per second to 3 megacycles per second (attenuation calibrated).

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.		Standard	
STOCK NOS.			
PROCUREM'T INFO.: Spec MIL-H-15362A			
PROCUREM'T COG.: Navy		DESIGN COG.: Navy, BuAer	
F.I.I.N.: 6625-572-6260		FUNCTIONAL CLASS. NO.: 10.4.5	

TEST SET, RADIO AN/ARM-32

ELECTROMECHANICAL DESCRIPTION: (Continued)

Attenuation Factor: 5 to 1.

Frequency of Input Signal: 190 to 2800 kilocycles per second for Radio Receiving Set AN/ARN-41B; 190 to 1725 kilocycles per second for Radio Receiving Set AN/ARN-41, AN/ARN-41A, AN/ARN-42 and AN/ARN-54.

MANUFACTURERS' OR CONTRACTORS' DATA:

Lear, Incorporated, Learcal Division, 3171 South Bundy Drive, Santa Monica, California; Contract No. NOas 56-879; Approximate Cost per Unit, $524.34.

TUBE COMPLEMENT:

REFERENCE DATA AND LITERATURE:

DD Form 61.

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
	Test Set, Radio AN/ARM-32					

TEST SET, RADIO AN/ARM-32

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Test Set, Radio AN/ARM-32 Including:	metal		14	12	20	
1	Test Set, Radio TS-1062/ARM-32						
1	Cover, Test Set CW-440/ARM-32						
1	Shaft Assembly Flexible MX-2257/ARM-32						
1	Mounting Bracket Control and Mounting Bracket Tuner MT-1890/ARM-32						
1	Cable, CX-4140/ARM-32						
1	Cable, CX-4141/ARM-32						
1	Cable, CX-4142/ARM-32						
1	Cable, CG-1568/ARM-32						
1	Cable, CG-1569/U			73-1/2 long			

TESTER, INSULATION
Type No. 13700-1-A
(Eclipse-Pioneer Division of
Bendix Aviation Corporation)

FUNCTIONAL DESCRIPTION:

A portable test unit designed to provide a high voltage test circuit for detecting weaknesses in the insulation of electrical equipment. Current flow through the tester is limited in order to prevent damage to equipment under test. The unit is equipped with a triple-scale voltmeter and two test prods.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The circuit contains a high-powered, low-frequency transformer which provides test voltages in three different ranges. A range selector provides for the selection of the desired test voltage range and a voltage control knob controls the voltage within that range. When a short is detected in the unit under test, current flows between the test prods forming a closed circuit to a relay. The closing of the relay completes a circuit to a short indicator light on the front panel of the tester.

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAD-806915	R88TO911-005-000	
PROCUREM'T INFO.:			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.5	
	- Electronics Test Equipment -		E.-P. 13700-1-A

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TESTER, INSULATION
Type No. 13700-1-A
(Eclipse-Pioneer Division of
Bendix Aviation Corporation)

ELECTROMECHANICAL DESCRIPTION: (Continued)
Power Supply: 115 volts, AC, 60 cycles per second, single-phase.
Test Voltage Settings: 750, 1500, and 2250 volts.
Voltmeter Ranges: 0 to 750 volts, 0 to 1500 volts, and 0 to 2250 volts.

MANUFACTURERS' OR CONTRACTORS' DATA:

Eclipse-Pioneer, Division of Bendix Aviation Corporation, 43 Williams Avenue, Teterboro, New Jersey.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 33A1-12-114-1 (Instructions and Parts Breakdown).

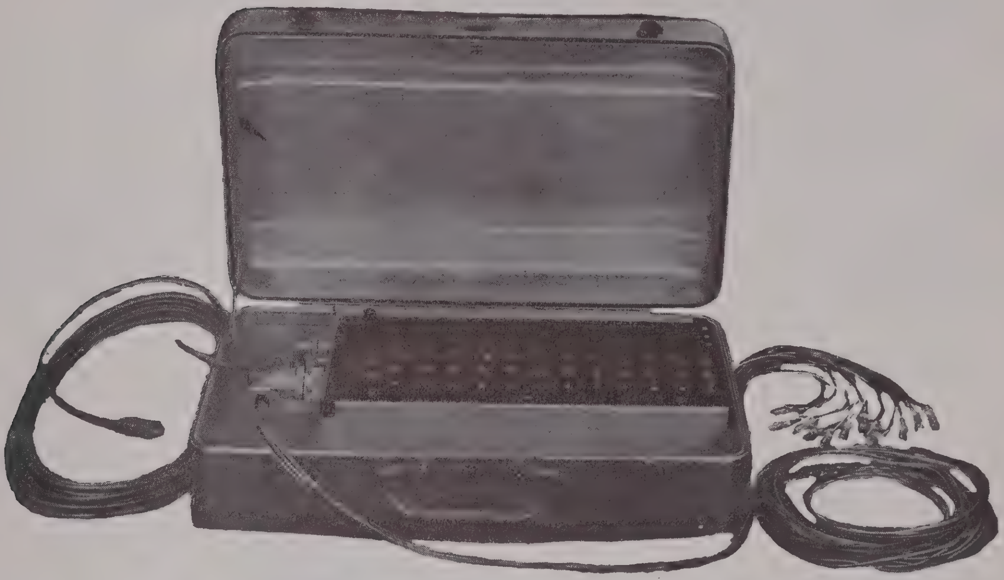
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Tester, Insulation (Eclipse-Pioneer 13700-1-A)	1.04	12	15	10	20

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Tester, Insulation (Eclipse-Pioneer 13700-1-A)		7CAD-806915 R88TO911-005-000	9	10-1/2	8	13

TESTER, INTERVALOMETER CIRCUIT
Part No. 458535
(Lockheed Aircraft Corporation)



FUNCTIONAL DESCRIPTION:

This is a portable, special purpose, rocket firing checkout instrument. It is a circuit tester used to determine if the firing signal is present at the electrical connector at the aft end of the rocket tubes. Indication is of the "go-no-go" type and an indicator lamp is provided for each circuit.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The power lead is connected to the airplane plug. The tester leads are connected to the rocket tube leads. When the intervalometer is fired, the lamps will light and stay lit if the corresponding circuits are correct. The internal circuit of the tester consists of millisecond relays and selenium dry rectifiers to prevent feedback to the intervalometer circuit. A power switch with pilot light is on the panel.

For testing the internal circuits of the instrument each of the twelve checkout lamps has an associated push button switch mounted below it.

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-806375		
PROCUREM'T INFO.:			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.5	
	- Electronics Test Equipment -		Lockheed 458535

his project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TESTER, INTERVALOMETER CIRCUIT
Part No. 458535
(Lockheed Aircraft Corporation)

ELECTROMECHANICAL DESCRIPTION: (Continued)

Power Supply: Power is received from the unit under test.

MANUFACTURERS' OR CONTRACTORS' DATA:

Lockheed Aircraft Corporation, Burbank, California.

Contract No.	Contract Date	Approximate Cost per Unit
AF 33(038)14805C	September, 1953	$293.00.
AF 33(038)14805D	October, 1954	$420.00.
AF 33(604)11035	July, 1955	$448.00.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

Lockheed Aircraft Corporation, Blueprint No. 458535 (2 sheets).

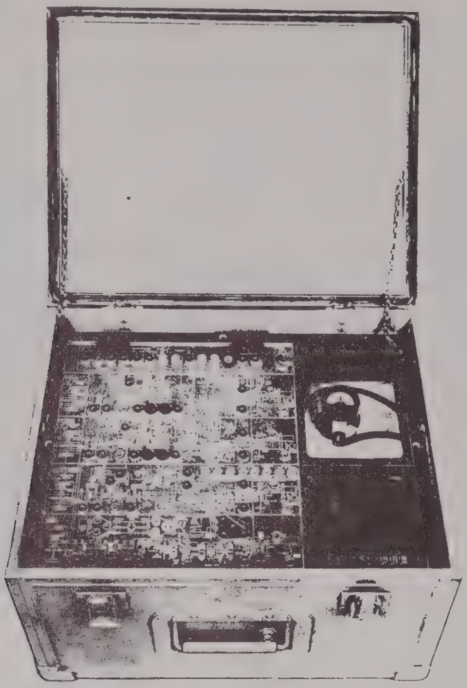
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Tester, Intervalometer Circuit (Lockheed 458535)	Metal	7CAC-806375	13	21	6-1/2	25

LINE MAINTENANCE TESTER
Part No. S1670-10070
(Sikorsky Aircraft Division, United Aircraft Corporation)



FUNCTIONAL DESCRIPTION:

A portable, special purpose junction box used to provide a convenient means to measure operating voltages and indicate circuit continuity of the Helicopter HSS-1 automatic stabilization equipment. The junction box permits measurements to be made of the roll, pitch, yaw and altitude channels and the supply voltages. The tester also indicates the servo motor position of the stabilization equipment.

RELATIONSHIP TO OTHER EQUIPMENT:

A multimeter, Simpson 260 or equivalent is required to measure DC voltages and a vacuum-tube voltmeter, Hewlett-Packard Model 400B or equivalent is required to measure the AC voltages.

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The tester consists basically of circuits for bringing stabilization equipment operating voltages to accessible test jacks. The panel of the

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.		Standard	
STOCK NOS.		(ASO)R88SKY-S1670-100 70	
PROCUREM'T INFO.:			
PROCUREM'T COG.: Navy		DESIGN COG.: Commercial	
F. I. I. N.:		FUNCTIONAL CLASS. NO.: 10.4.5	

LINE MAINTENANCE TESTER
Part No. S1670-10070
(Sikorsky Aircraft Division, United Aircraft Corporation)

ELECTROMECHANICAL DESCRIPTION: (Continued)

junction box is engraved with a wiring diagram of the circuits under test. Test jacks are mounted on the panel at each point in the circuit where measurements are required by external meters. Continuity of 20 stabilization equipment circuits is indicated by lamps during tests. A null indicating meter, included with the test set, provides an indication either of the servo motor position for any one signal channel, or of the servo motor control voltage input for the pitch, roll, yaw or altitude channels. The null indicator is a zero center meter calibrated in DC volts. A switch, located on the test set, enables the operator to use the null indicator in the tester or the indicators of the equipment under test.

Power Supply: None.

Meter Sensitivity: 100 to 0 to 100 microamps.

MANUFACTURERS' OR CONTRACTORS' DATA:

Sikorsky Aircraft Division, United Aircraft Corporation, Bridgeport, Connecticut; Contract No. NOa(s) 55-180PCR91-57.

TUBE COMPLEMENT:

None

REFERENCE DATA AND LITERATURE:

NavAer 17-15KE-502 (Operation and Service Instructions).

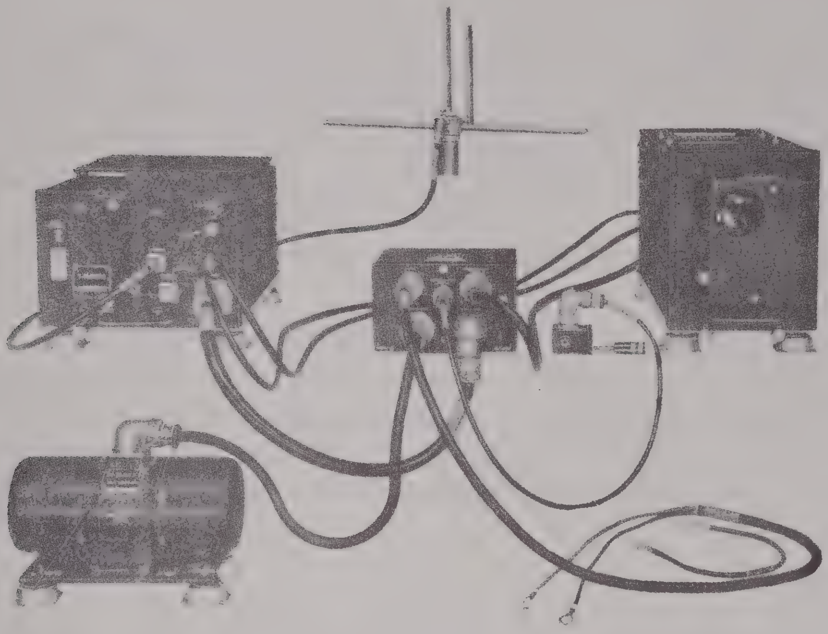
EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches) H	W	D	Weight (Lbs.)
1	Line Maintenance Tester Sikorsky S1670-10070	metal					

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches) H	W	D	Weight Packed (Lbs.)
	Line Maintenance Tester Sikorsky S1670-10070					

RADIO TRANSMITTING SET AN/AXT-2



FUNCTIONAL DESCRIPTION:

An equipment comprising a complete television camera and transmitting system for use in aircraft. Scenes visible from an aircraft making use of the equipment may be reproduced in another aircraft utilizing suitable receiving equipment. Under favorable operating conditions, scenes clearly visible at the transmitting aircraft may be reproduced at the receiving aircraft at a distance of at least 10 miles. The equipment may be adjusted to operate on any one of ten different frequency channels. It is designed to operate under severe conditions of vibration, temperature, humidity, and altitude.

RELATIONSHIP TO OTHER EQUIPMENT:

Similar to Navy Model ATK (Aircraft Radio Transmitting Equipment).

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The equipment consists of a conversion unit, radio transmitter, dynamotor, filter-junction box, switch box, connecting cables, and antenna. The

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.	Standard		
STOCK NOS.	1600-267033020		
PROCUREM'T INFO.:			
PROCUREM'T COG.: USN		DESIGN COG.: USN, BuShips	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.6	
- Electronics Test Equipment -			AN/AXT-2

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

RADIO TRANSMITTING SET AN/AXT-2

ELECTROMECHANICAL DESCRIPTION: (Continued)

conversion unit translates an optical scene into corresponding video signals and produces synchronizing and blanking signals for control of the transmitter, receiver, and monitor units. These video and synchronizing signals are amplified in the radio transmitter, where they modulate the RF power amplifier stage. The output of the power amplifier is radiated from the transmitting antenna.

Power Supply: 25 to 29 volts, DC (nominally 26.5 volts), supplied by two seven-cell storage batteries (BB-201U) drawing approximately 27 amperes at nominal voltage.

Frequency Range: 258 to 378 megacycles per second.

MANUFACTURERS' OR CONTRACTORS' DATA:

Farnsworth Electronics Company (formerly Capehart-Farnsworth Corporation), 3700 Pontiac Street, Fort Wayne 1, Indiana; Navy Contract No. NXsa-49672.

RCA Victor Division of Radio Corporation of America, Camden, New Jersey; Navy Contract No. NXsa-49669; Approximate Cost per Unit, $4000.00 (1945).

TUBE COMPLEMENT:

Conversion Unit: 1 JAN-1846, 4 JAN-1649, 2 JAN-6X5GT/G, 4 JAN-12SN7GT, 2 JAN-6L6, 2 JAN-OD3/VR150, 2 JAN-12SL7GT.

Transmitter: 2 JAN-6L6, 2 JAN-SH7, 1 JAN-955, 1 JAN-6SL7GT, 1 JAN-5Y3GT/G, 4 JAN-8025, 1 JAN-6V6GT/G.

REFERENCE DATA AND LITERATURE:

TO 12S6-2AXT2-1 (Operating Instructions).
TO 12S6-2AXT2-2 (Maintenance Instructions).
TO 12S6-2AXT2-14 (Spare Parts List).

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Over-all Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

RADIO TRANSMITTING SET AN/AXT-2

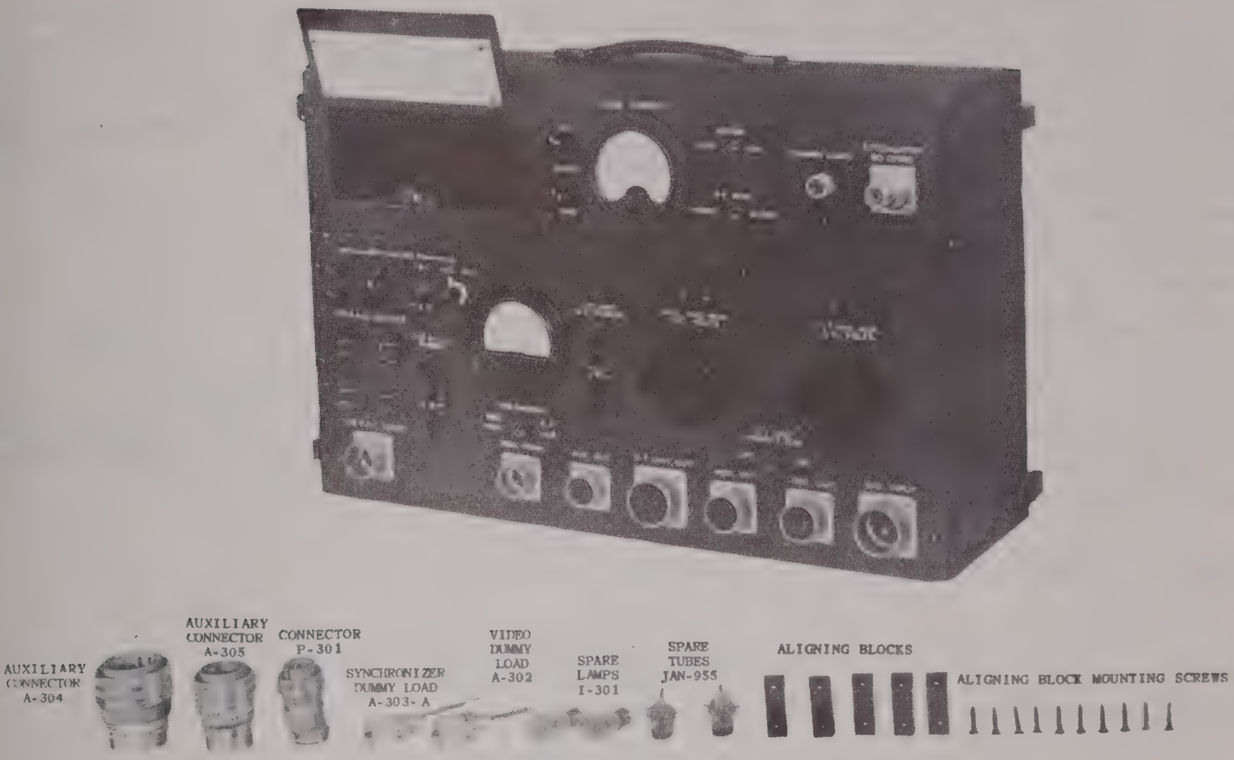
EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Over-all Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Radio Transmitting Set AN/AXT-2		1600-267033020				
1	Conversion Unit PH-522/AXT-2		1600-211962486	11-3/4	9-13/32	23-15/16	39.5
1	Conversion Unit Shock Mount CRV-10168		1600-293283853				2.5
1	Radio Transmitter T-61A/AXT-2		1600-223129951	9-31/32	12-13/64	8-1/32	26.0
1	Radio Transmitter Shock Mount CRV-10167		1600-293286852				2.0
1	Dynamotor DY-25/AXT-2		1600-337837900	9-3/8	12	6-1/2	23.5
1	Dynamotor Shock Mount CRV-10166		1600-293283850				2.25
1	Filter-Junction Box J-60/AXT-2		1600-291942296	5-9/64	8-33/64	7-27/32	8.0
1	Filter-Junction Box Mounting Plate CRV-10174		1600-293284851				0.5
1	Switch Box and Plug SA-34/AXT-2		1600-394427541	1-15/16	2-5/16	4-7/8	0.5
1	Transmitter Antenna Assembly (Corresponding to Freq. Channel)			13-1/16	22-3/8	7	2.0
						(Continued)	

EQUIPMENT SUPPLIED: (Continued)

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Over-all Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Set Cables and Plugs (Assembled)						9.25
1	Cable CA-3001			73 long			1.75
1	Cable CA-3002			30-1/2 long			2.25
1	Cable CA-3003			72 long			0.75
1	Cable CA-3004			72 long			0.75
1	Cable CA-3005			60 long			1.50
1	Cable CA-3006			37 long			0.50
1	Cable CA-3007			38 long			
1	Cable CA-3008			120 long			0.75
1	Cable CA-3010			18 long			0.25

ALIGNMENT TEST SET I-231
(TEST SET, TELEVISION, I-231)


AUXILIARY CONNECTOR A-304
AUXILIARY CONNECTOR A-305
CONNECTOR P-301
SYNCHRONIZER DUMMY LOAD A-303-A
VIDEO DUMMY LOAD A-302
SPARE LAMPS I-301
SPARE TUBES JAN-955
ALIGNING BLOCKS
ALIGNING BLOCK MOUNTING SCREWS

FUNCTIONAL DESCRIPTION:

A portable, ground load assembly designed to measure input voltage, modulation percentage and relative power outputs of drone aircraft television transmitters and receivers. The test set consists of sockets and connectors to distribute AC and DC to the units under test, and contains voltmeters to measure the input voltage, the modulation percentage, and the relative power output.

RELATIONSHIP TO OTHER EQUIPMENT:

Test Sets I-231 and I-231-T1 are identical except that I-231-T1 has a steel case, and a different type of plug is used on the panel for AC input and a third switch is mounted immediately to the right of the meter in the top center of the panel.

Used in conjunction with Fluorescent Projector I-232, to test SCR-549A (Radio Set), AN/AXR-1, AN/AXR-2.

	AIR FORCE	NAVY	ARMY
TYPE CLASS.	Standard		
STOCK NOS.	7CAC-801319-258		3F4190-231
PROCUREM'T INFO.: USAF Spec. No. 71-5031			
PROCUREM'T COG.: USAF		DESIGN COG.: USAF, ARL	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.6	
- Electronics Test Equipment -			I-231

is project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

ALIGNMENT TEST SET I-231
(TEST SET, TELEVISION, I-231)

ELECTROMECHANICAL DESCRIPTION:

Power Supply: 110 volts, AC, single phase, 60 cycles per second, 10 watts and 28 volts, DC, at 400 megacycles per second.

Frequency Range: 250 to 380 megacycles per second.

Mounting Bases: Test set covers form the bases for aligning the conversion unit and fluorescent projector.

Dummy Load Characteristics:

Maximum Power: 25 watts average.

Impedance: 50 ohms.

Standing Wave Ratio: 75% minimum.

MANUFACTURERS' OR CONTRACTORS' DATA:

RCA Victor Division, Camden, New Jersey; Contract No. 1416-DAY-44, Approximate Cost per Unit, $738.00; Contract No. 221-45, 21 October 1944; Approximate Cost per Unit, $736.65.

TUBE COMPLEMENT:

1 JAN-955.

REFERENCE DATA AND LITERATURE:

TO 16-40I231-2 (Maintenance Manual).

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Over-all Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Alignment Test Set I-231 with accessories (Shelf Package, Water-Resistant Carton)	2.89	24	16	13	57

ALIGNMENT TEST SET I-231
(TEST SET, TELEVISION, I-231)

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Over-all Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Alignment Test Set I-231	Aluminum	7CAC-801319-258 3F4190-231	20-1/8	12-15/16	12-1/4	
1	Cord CD-1206		7CAC-170264-365 3E1999-206	120 long			
2	Cord CD-1205		7CAC-170264-38 3E1999-205	72 long			
1	Cord CD-1204		7CAC-170264-52 3E1999-204-72	72 long			
1	Cord CD-1203		7CAC-170264-325 3E1999-203-72	72 long			
2	Cord CD-1202		7CAC-170264-385 3E1999-202-120	120 long			
2	Cord CD-800			120 long			
1	Cord CD-1201		7CRC-P278354 3E1999-201	72 long			
1	Shield Assembly H-302			5-1/8	18-1/2	7-3/4	
1	Linewriting Chart			8-1/2	11		
1	Cord CD-1289		1690-322015891 3E1999-289	96 long			
1	Trouble Light Assembly A-301						
1	Dummy Load M-411		7CAC-274402 2Z3900-411				

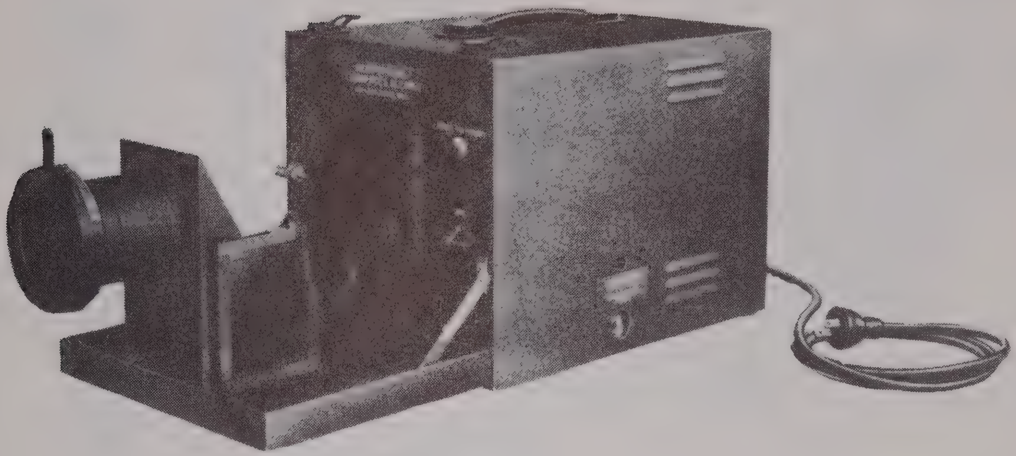
(Continued)

ALIGNMENT TEST SET I-231
(TEST SET, TELEVISION, I-231)

EQUIPMENT SUPPLIED: (Continued)

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Over-all Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Dummy Load M-419		7CAC-274405 2Z3900-419				
1	Auxiliary Connector Assembly						
1	Auxiliary Connector Assembly						
1	Plug AN-3106-16S-4P		8850-240420				
1	Set Installation Blocks and Screws						
2	Tube (Spares) JAN-955		3300-235675000 2J955				
						Total:	48

FLUORESCENT PROJECTOR I-232



FUNCTIONAL DESCRIPTION:

A portable, fluorescent projector used to provide the necessary optical facilities for projecting a pre-focused test pattern on a television pickup unit. In actual operation, the scene is focused by the lens of the television unit on the mosaic of the picture pickup tube. This unit acts as a substitute for the actual scene and projects either a scene or test pattern directly on the television pickup unit. Amount of light output is controlled by an iris disphragm. There is a lamp current test jack located on the side panel of I-232.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Power Supply: 115 volts, AC, 50 to 60 cycles per second, single phase, 50 watts.
Light Output: 1 to 20 foot candles of illumination at the mosaic.
Temperature Range: $+5^{\circ}$ C. to $+50^{\circ}$ C.

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.	Standard		
STOCK NOS.	1690-326826400		3F3710-232
PROCUREM'T INFO.:			
PROCUREM'T COG.: USAF		DESIGN COG.: USAF, ARL	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.6	
- Electronics Test Equipment -			I-232

is project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

FLUORESCENT PROJECTOR I-232

MANUFACTURERS' OR CONTRACTORS' DATA:
RCA Victor Division, Camden, New Jersey; Order No. 221-DAY-45-SD; Order No. 1416-DAY-44; Approximate Cost per Unit, $480.00.

TUBE COMPLEMENT:
2 JAN-25Z5 (22-volt filament).

REFERENCE DATA AND LITERATURE:
TO 16-40I232-2 (Maintenance Instructions).

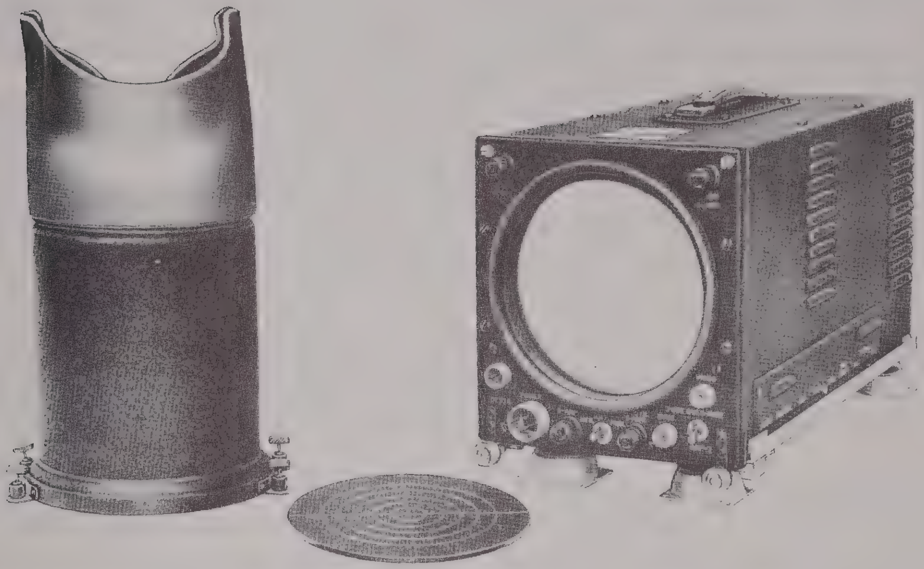
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Fluorescent Projector I-232 (Shelf Package, Water-Resistant Carton)	1.22	16	12	11	39

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Fluorescent Projector I-232	Metal	1690-326826400 3F3710-232	14	9-1/2	9-1/4	29
2	Fluorescent Lamp, 6 watt daylight, Type T5						
2	C-T Test Slide Contrast Test Pattern			4	3-1/2	1/8	
2	C-T Test Slide Scene			4	3-1/2	1/8	
2	C-T Test Slide Resolution Test Pattern			4	3-1/2	1/8	
4	Vacuum Tube Replacement JAN-25Z5		3300-235090000 2J2525				
1	Fuse, 1.5 amperes Type 3AG, Replacement		8800-360980				

MONITOR INDICATOR ID-66/AXR-1



FUNCTIONAL DESCRIPTION:

A portable auxiliary viewing unit which monitors a received television picture from an auxiliary position, generally in aircraft. It is used in testing when connected to a conversion unit or a television receiver. A conversion unit translates the scene into corresponding electrical impulses and produces synchronizing and blanking signals for control of transmitter, receiver and monitor units. The monitor indicator contains part of the circuitry of a receiver, so that it can be connected into the circuit of a receiver or a conversion unit, and can display the identical scene displayed on the screen of an associated receiver. This equipment is particularly useful in observing the test pattern on a receiver installed in an aircraft while he monitor and other test equipment are set up conveniently on a test bench alongside. Indication is provided on a 7-inch cathode ray tube.

RELATIONSHIP TO OTHER EQUIPMENT:

This equipment is used in testing AN/AXT-2B, -2C, and 3, Radio Transmitting

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	1600-212604960		2C1565-66
PROCUREM'T INFO.:			
PROCUREM'T COG.: Navy		DESIGN COG.: Navy, BuAer	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.6	
- Electronics Test Equipment -			ID-66AXR-1

his project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U.S.A

MONITOR INDICATOR ID-66/AXR-1

RELATIONSHIP TO OTHER EQUIPMENT: (Continued)

Sets. It is similar to Monitor Unit BC-1214-A(SigC).

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: Circuitry consists of a video amplifier, driven type deflection circuit, and the kinescope tube. The equipment also contains a built-in dynamotor which provides necessary voltages from the DC supply of the ship.

Power Supply: 25 to 31 volts, DC (nominal 28.6 volts, DC), 4.25 amperes.

Channel Frequencies: 1 to 264, 2 to 276, 3 to 288, 4 to 300, 5 to 312, 6 to 324, 7 to 336, 8 to 348, 9 to 360, 10 to 372 megacycles per second.

Vertical Deflection Frequency: 40 cycles per second.

Horizontal Deflection Frequency: 14,000 cycles per second.

Scan Lines per Frame: 350.

Video Signal Input: 1.2 volts across 200 ohms input impedance.

Synchronizing Signal Input: 6 to 7 volts across 680 ohms imput impedance.

High Voltage Input from Dynamotor: +400 volts, DC, ±3% at 0.125 amperes.

MANUFACTURERS' OR CONTRACTORS' DATA:

Farnsworth Electronics Company, formerly Farnsworth Television and Radio Corporation, Fort Wayne, Indiana; Navy Contract NXsa-49672; Farnsworth Part/Dwg. No. A-302009-501; Approximate Cost per Unit, $1955.00.

TUBE COMPLEMENT:

1 JAN-6AC7, 1 JAN-6SN7GT, 2 JAN-12SN7GT, 1 JAN-807, 1 JAN-8016, 1 JAN-7CP1.

REFERENCE DATA AND LITERATURE:

TO 08-30AXR1-2 (Maintenance Instructions for AN/AXR-1).

SHIPPING DATA:

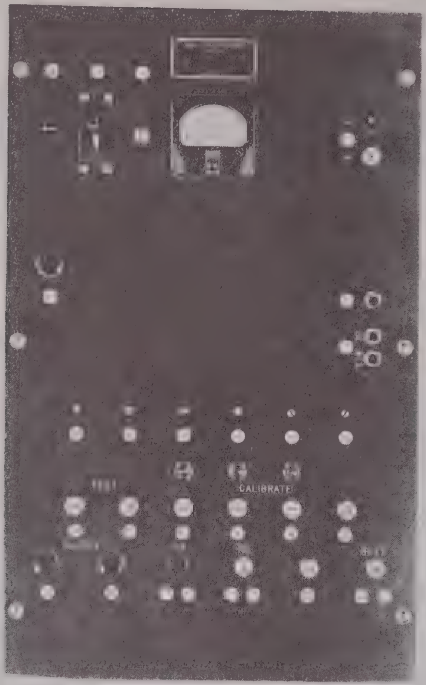
No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Over-all Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
ID-66/AXR-1	- Electronics Test Equipment -					

MONITOR INDICATOR ID-66/AXR-1

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Over-all Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Monitor Indicator ID-66/AXR-1 Including:	Aluminum	1600-212604960 2C1565-66	11-5/32	19-5/8	8-21/32	31.5
1	Mounting Base CFN-10169 (FT-456-A)				20	8-19/32	1.25
1	Light Shield CFN-10175				14		2
1	Filter Disc						

ELECTRICAL CABLE TEST SET AN/PTM-2



FUNCTIONAL DESCRIPTION:

A portable general purpose self-contained instrument which is used to measure insulation resistance conditions of telephone cables and associated equipment in dial central offices.

RELATIONSHIP TO OTHER EQUIPMENT:

Similar to Western Electric Company Test Set H-297-421.

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: Consists of a terminal board assembly containing a selenium rectifier, a neon glow lamp, and a meter.

Power Supply: Internal battery source supplies requirements: (6) BA-2 (22-1/2 volt) dry batteries; (2) BA-27 (3 volt) dry batteries; (1) BA-59 (46-1/2 volt) dry batteries.

Resistance Range: 0 to 100 ohms.

Meter Scale: 0 to 25 milliamperes, calibrated in ABCD and EMF ranges.

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			Standard
STOCK NOS.			
PROCUREM'T INFO.:			
PROCUREM'T COG.: USA		DESIGN COG.: USA, SCEL	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.7	
	- Electronics Test Equipment -		AN/PTM-2

his project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Betheada, Md. - Multilithed in U. S. A.

ELECTRICAL CABLE TEST SET AN/PTM-2

MANUFACTURERS' OR CONTRACTORS' DATA:

Western Electric Company Inc., 120 Broadway, New York, New York.

TUBE COMPLEMENT:

1 JAN-6SJ7, 1 Type 43RCA.

REFERENCE DATA AND LITERATURE:

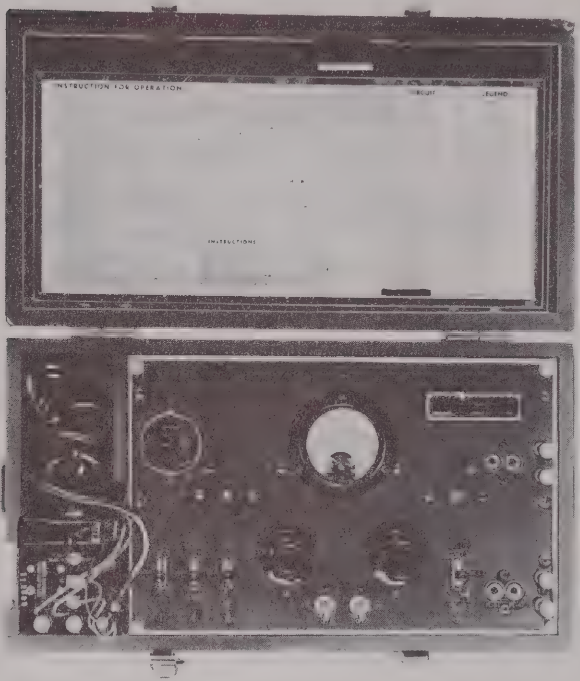
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Electrical Cable Test Set AN/PTM-2						
1	Patch Cord						

TELEPHONE TEST SET AN/PTM-3



FUNCTIONAL DESCRIPTION:

A portable, general purpose, dry battery operated transmission measuring set used primarily to measure losses or gains in telephone or telegraph circuits or equipment. The set consists of a sending audio oscillator, a receiving audio amplifier, and a local battery telephone. Loop tests, straightaway line tests, transmission measurements through switchboard line trunk or cord circuits, and transmission measurements through a repeater or amplifier can be made using this set. The receiving amplifier may be used at frequencies other than those generated by the oscillator in the test set. An external oscillator is required in obtaining frequency response of amplifiers, repeaters, and filter networks, at various levels. Indication is provided on a power level meter dial, two attenuator dials, and four key switches.

RELATIONSHIP TO OTHER EQUIPMENT:

This test set is interchangeable with Test Set I-61-E and is interchangeable with previous versions of that set, except for maintenance parts. The I-61-E and AN/PTM-3 have internal batteries; previous models have externally connected batteries.

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.		F17-T-34225-6501	3F4061E
PROCUREM'T INFO.: Specs. 71-492 (SigC), and MIL-T-12905			
PROCUREM'T COG.: USA		DESIGN COG.: USA, CSL	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.7	
	- Electronics Test Equipment -		AN/PTM-3

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TELEPHONE TEST SET AN/PTM-3

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The output of a resistive feedback oscillator and buffer amplifier circuit is transformed and put across a rheostat which determines the output impedance. A variable attenuator in the buffer plate circuit sets the output level. The calibrated receiving amplifier is a two-stage R-C coupled amplifier which uses negative feedback stabilization. Attenuation is accomplished using a high impedance T network and a grid potentiometer. The output is loaded by the power level meter and a fixed calibrating resistor. The meter is a copper oxide rectifier type.

Power Supply: 1.5 volts, DC, supplied by one Battery BA-35 (1.5 volts) and 90 volts, DC, supplied by two Batteries BA-36 (45 volts).

Frequency Range: Amplifier: 100 to 10,000 cycles per second.
Oscillator: 500, 1000, 2500 cycles per second.

Type of Transmission Reception: Continuous Wave.

Input Power Level: -50 to +15 dbm in steps of 0.5 dbm.

Output Power Level: -40, -20, 0 dbm. (Note: 0 dbm refers to 1 milliwatt into 600 ohms.)

Input and Output Impedance: 600 ohms.

Loss Due to Impedance Mismatch: About 0.5 dbm for a mismatch of 2 to 1 ratio.

Oscillator Frequency Stability: ±50 cycles per second.

Impedance Adjusting Accuracy: ±1%.

MANUFACTURERS' OR CONTRACTORS' DATA:

A. F. Smuckler & Company, Brooklyn, New York; Army Order No. 2976-PH-52-04.

TUBE COMPLEMENT:

1 JAN-1LN5, 1 JAN-3Q5GT, 2 JAN-1G4GT/G.

REFERENCE DATA AND LITERATURE:

TM 11-346 (TO 16-40I-61-5) (Test Sets I-61-A, -B, -C).

SHIPPING DATA:

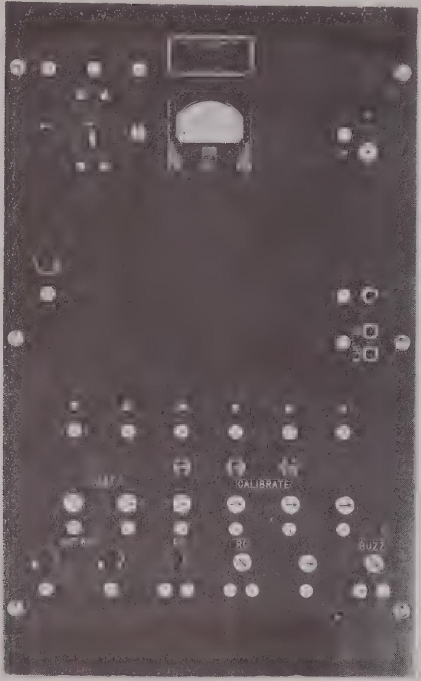
No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Over-all Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

TELEPHONE TEST SET AN/PTM-3

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Over-all Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Telephone Test Set AN/PTM-3 Including:	Wood	F17-T-34225-6501 3F4061E	11	18-1/2	10-1/8	47
1	Telephone Test Set TS-773/PTM-3		3F4325-773				
1	Telephone EE-8-B		1790-418645000 4B5008-B	9-9/16	7-11/16	3-1/2	9.75
1	Cord		3E4120	26 long			

ELECTRICAL CABLE TEST SET AN/PTM-4



FUNCTIONAL DESCRIPTION:

A portable general purpose self-contained instrument which is used to measure insulation resistance conditions of telephone cables and associated equipment in a manual central office.

RELATIONSHIP TO OTHER EQUIPMENT:

Similar to Western Electric Company Test Set 64959.

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: Consists of a terminal board assembly containing a selenium rectifier, a neon glow lamp, and a meter.

Power Supply: Internal battery source supplies requirements: (6) BA-2 (22.5 volts), (1) BA-27 (3 volts), (1) BA-8 (24 volts), (1) BA-59 (46.5 volts); all are dry batteries.

Meter Scale: 0 to 25 milliamperes, calibrated in ABCD and EMF ranges.

Resistance Range: 0 to 100 ohms.

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			Standard
STOCK NOS.			
PROCUREM'T INFO.:			
PROCUREM'T COG.: USA		DESIGN COG.: USA, SCEL	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.7	
	- Electronics Test Equipment -		AN/PTM-4

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U.S.A.

ELECTRICAL CABLE TEST SET AN/PTM-4

MANUFACTURERS' OR CONTRACTORS' DATA:
Western Electric Company, 120 Broadway, New York, New York.

TUBE COMPLEMENT:
1 JAN-6SJ7, 1 Type 43RCA.

REFERENCE DATA AND LITERATURE:

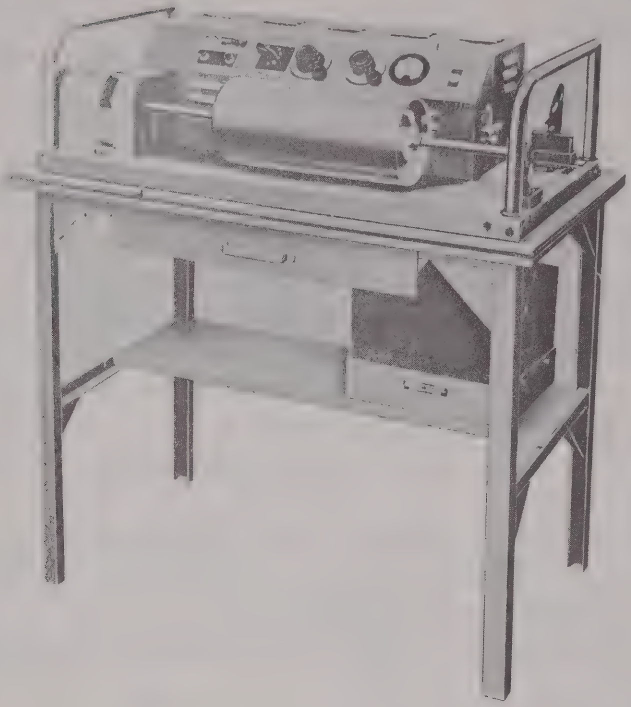
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Electrical Cable Test Set AN/PTM-4						
1	Patch Cord						

FACSIMILE SET AN/TXC-1B



FUNCTIONAL DESCRIPTION:

An electromechanical-optical facsimile set of the revolving drum type for the transmission and reception of page copy. In service, it is used for transmission of maps, photographs, sketches, and printed or handwritten text over regular voice-communication channels, either wire or radio, between fixed stations. Colored copy may be transmitted but all reproduction is in black, white, and intermediate shades of gray. Received copy is recorded either directly on chemically treated paper or photographically in either negative or positive form.

In transmitting, the subject copy is explored with a beam of light along a set of closely spaced parallel lines (scanning) which translates the blacks and whites of the copy into electrical signals by use of a photo-cell. This electrical signal is translated into amplitude modulation of an audio carrier current. In receiving, the electrical signal is translated into marks on a record sheet which corresponds to those on the original copy. Scanning and recording motions are synchronized by use of a precision tuning fork controlled local oscillator. As test equipment, this

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.	Standard		
STOCK NOS.			6C25-TXC-1B
PROCUREM'T INFO.:	Army Spec. 71-3107 (SigC)		
PROCUREM'T COG.:	Army	DESIGN COG.: Army, CSL	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.7	
	- Electronics Test Equipment -		AN/TXC-1B

his project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U.S.A.

FACSIMILE SET AN/TXC-1B

FUNCTIONAL DESCRIPTION: (Continued)

set serves to monitor an identical set in service, and its received and reproduced copy serves as a means for analyzing the copy reproduced by the set in service. Many possible malfunctions or misadjustments can be discovered and located using this comparative analysis. Also, by this comparison method, other front panel controls and indicators, as well as the talk-back circuit, can be qualitatively tested.

RELATIONSHIP TO OTHER EQUIPMENT:

This set is similar to Facsimile Sets AN/TXC-1 and 1A, but control and circuit changes make it not completely interchangeable.

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: Principal components are a facsimile transceiver, which serves either as transmitter or receiver, depending on the setting of a front panel selector switch, and a rectifier power unit which supplies operating power to the transceiver and operates from an AC source.

Power Supply: 100 to 130 volts, AC, 50 to 65 cycles per second, single phase, 250 watts at 115 volts.

Frequency Range: 900 to 2700 cycles per second (sideband limits).

Audio Carrier Frequency: 1800 cycles per second.

Double Sideband Width: 1800 cycles per second.

Type of Transmission Reception: Amplitude Modulated Audio Carrier.

Signal Levels:

Input (for reception): -45 to 0 dbm.

Output (for transmission): 0 to +25 dbm.

Maximum Size of Copy: 12" x 18-11/16".

Size of Scanning Spot: 0.01".

Speed of Drum: Rotation: 1 revolution per second. Lateral Movement: 12-1/2" in 20 minutes.

Scanning Line Per Inch: 96.

Drum Speed Control: Synchronous motor controlled by 1800 cycles per second fork oscillator.

Speaker Size: 4" diameter cone.

Speaker Input: 150 milliwatts.

Speaker Input Impedance: 250 ohms.

MANUFACTURERS' OR CONTRACTORS' DATA:

Times Telephoto Equipment Inc., New York, New York; Army Order No. 4221-PHILA-47-77.

TUBE COMPLEMENT:

6 JAN-7C5, 1 JAN-1645, 1 RETMA-R1130B, 5 JAN-7L7, 1 JAN-6S7, 4 JAN-7N7, 1 JAN-5Z3, 1 JAN-7C7, 2 JAN-5651, 1 JAN-884, 3 JAN-1635.

REFERENCE DATA AND LITERATURE:

TO 16-30TXC1-8 (TM 11-2258) (Facsimile Sets AN/TXC-1, -1A, -B).

FACSIMILE SET AN/TXC-1B

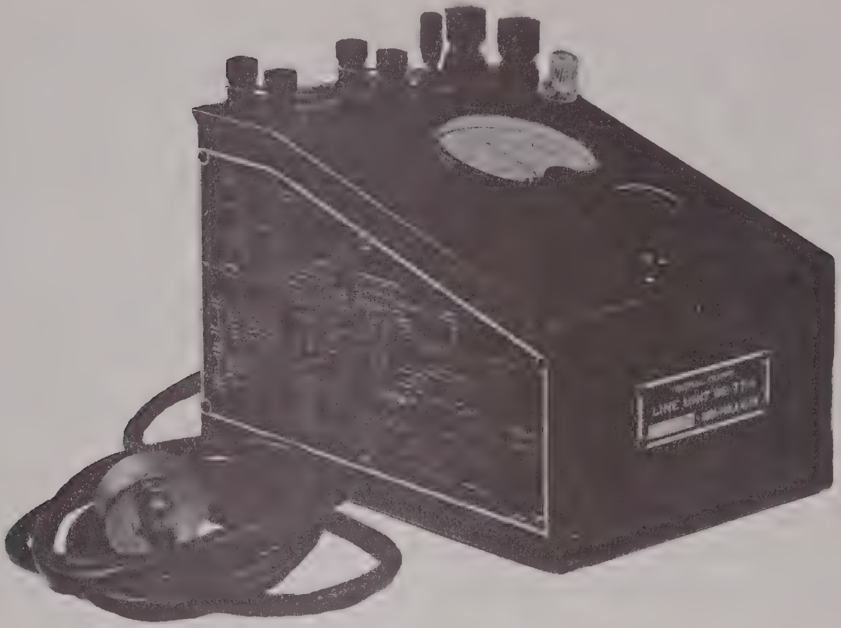
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Facsimile Transceiver TT-1B/TXC-1	8.4	15-1/2	40-1/2	22-1/2	218
1	Rectifier Power Unit PP-86A/TXC-1	2.3	15	17-1/2	15-1/4	89
1	Photographic Equipment PH-549/TXC-1	15.6	26	40	26	339
1	Table MT-252A/TXC-1 and dust covers	12.0	26	40	26	137

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight Packed (Lbs.)
				H	W	D	
1	Facsimile Set AN/TXC-1B Including:		6C25-TXC-1B				
1	Facsimile Transceiver TT-1B/TXC-1		6C310-1	10-3/4	34-5/8	17-5/8	85
1	Table MT-252A/TXC-1			32	37	22	86
1	Rectifier Power Unit PP-86A/TXC-1		3H4698-86	9	12	10	48
1	Photographic Equipment PH-549/TXC-1						8.3
1	Loudspeaker LS-11			4-5/8	4-5/8	2-5/8	4
1	Enamel Tray			19	4	24	6.8

TEST INDICATOR BE-77-A, -B



FUNCTIONAL DESCRIPTION:

A portable test unit designed for use with teletypewriter sets which transmit and receive direct current neutral type line signals. The equipment performs the following functions: (1) connects the teletypewriter signal circuits to telegraph lines; (2) provides and adjustment to improve the quality of signals applied to the teletypewriter typing unit; (3) measures and adjusts line current; (4) provides connection to a source of line and local current supply; (5) measures the voltage of the DC power source; (6) measures the quality of received signals.

RELATIONSHIP TO OTHER EQUIPMENT:

All parts of Indicators BE-77-A and -B are electrically interchangeable. With the exception of the meter keys, all parts are also mechanically interchangeable. These models differ from BE-77 with respect to the bias meter and voltmeter circuits which are built in to the A and B models but are separate units with the original model.

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The following four circuits perform the functions of this equip-

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.			4A 1377
PROCUREM'T INFO.:			
PROCUREM'T COG.: USAF		DESIGN COG.: USAF, RADC	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.7	

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

ELECTROMECHANICAL DESCRIPTION: (Continued)

ment: (1) a line relay circuit, (2) a line current measuring circuit, (3) a voltage measuring circuit, (4) a bias measuring circuit.

The line relay, actuated by signals from the line, repeats the signals to the teletypewriter through a 1600-ohm resistor and the DC power supply. By adjustment of this relay, distortion of incoming line signals can be removed before the signal is repeated.

The line current and voltage measuring circuits include a meter, a 1.01 ohm shunt, and a 150,000 ohm resistor. For line current measurement the meter is connected in parallel with the low resistance shunt; for voltage measurements the meter is connected in series with the 150,000 ohm resistor.

The bias measuring circuit is designed so that distorted line impulses will actuate the line relay which can be adjusted to give impulses of zero bias. The distorted signal and the relayed signal pass through a meter in opposing directions; thus if no distortion is present the meter will register zero. If distortion is present, the current will register more in one direction on the meter than in the other.

Power Supply: 0.140 ampere DC, 115 volts.
Meter Scales: 100-0-100 milliamperes.
Center division indicates 115 volts.
Center division indicates 0 bias.

MANUFACTURERS' OR CONTRACTORS' DATA:

Automatic Signal Division, Eastern Industries, Inc., Regent Street, East Norwalk, Connecticut; Approximate Cost per Unit, $70.00, 1945.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TM 11-359 March 1947.

SHIPPING DATA:

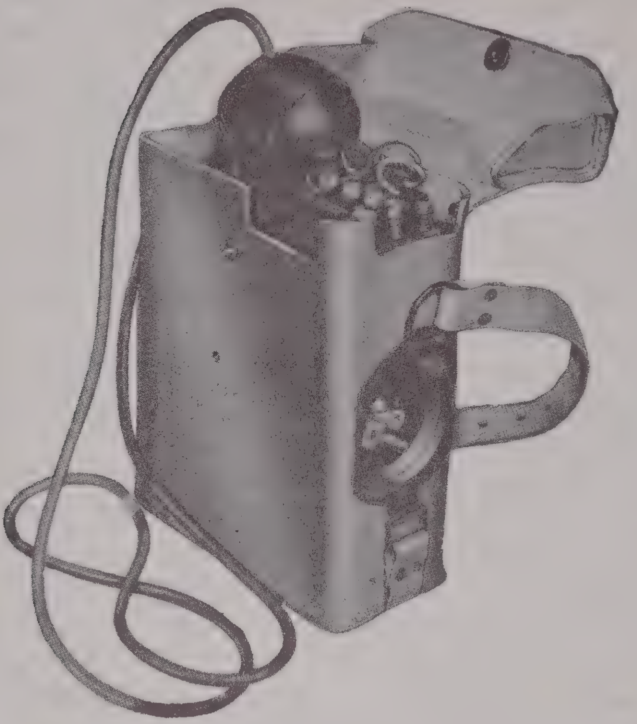
No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Test Indicator BE-77-A, -B	2.9				40

TEST INDICATOR BE-77-A, -B

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Test Indicator BE-77-A, -B	Sheet Steel	4A1377	6-3/8	6	8-1/4	28
1	Lamp, Neon						
1	Fuse, 1/4 amp, 250 volts						
1	Line Relay						

TELEPHONE EE-8-B



FUNCTIONAL DESCRIPTION:

A portable, field telephone designed for use on either local or common battery telephone systems. Circuit elements are arranged for antisidetone transmission. It is used in testing a control unit. However, in service it is used in point to point communication and in local and common battery switchboard systems. Also it can be used in open wire communication. It contains a hand operated generator for signaling, a handset for audio transmission and reception, and a ringer to indicate an incoming call. The terminal block contains a lever switch, a screw switch, a jack to accommodate the handset cord, line and battery binding posts, an induction coil, and a holding coil for relay operation. The handset contains a switch for removing battery power from the transmitter when receiving.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The handset contains a transmitter and receiver. The transmitter is of the granular carbon type. The receiver is a permanent-magnet

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	1790-418645000		4B5008-B
PROCUREM'T INFO.:			
PROCUREM'T COG.: Army		DESIGN COG.: Army, CSL	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.7	
- Electronics Test Equipment -			EE-8-B

ELECTROMECHANICAL DESCRIPTION: (Continued)

diaphragm type. The body of the telephone contains a hand generator with two stationary magnets and two pole pieces arranged alternately about a rotating armature, a single gang type ringer, and a holding coil to operate the line relay when the level switch is released by raising the handset.

Power Supply: 3 volts, DC, 0.1 ampere, supplied by two Batteries BA-30(1.5 volt).

Frequency Range: (Hand generated at 1,000 rpm) 16 cycles per second.

Transmitter Output: 3 milliwatts (over voice frequency range).

Receiver Resistance: 55 ohms.

Receiver Impedance: 256 ohms (600 to 1,000 cycles per second frequency).

Generator Resistance: 400 ohms.

Generator Open Circuit Voltage: 100 volts, approximately.

Generator Output Current: 90 milliamperes (200 ohm load); 50 milliamperes (1,000 ohm load); 9.5 milliamperes (10,000 ohm load).

Ringer Impedance: 18,750 ohms (1,000 cycles per second frequency).

Holding Coil Impedance: 63,000 ohms (1,000 cycles per second frequency).

Holding Coil Resistance: 100 ohms, approximately.

Holding Coil Transmission Loss: Less than 0.4 decibels.

Talking Range as a Local Battery Telephone: 11 to 17 miles, using Wire W-110-B, and depending on type of line loading and weather. This may be increased to as much as 360 miles using #104 copper wire on an open line.

Talking Range on a Switchboard System: About one-sixth the range of a point-to-point circuit.

MANUFACTURERS' OR CONTRACTORS' DATA:

Stromberg-Carlson Telephone Manufacturing Company, Rochester, New York; Army Order 22894-PHILA-43.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TM 11-333 (TO 16-40EE8-5) (Operating and Maintenance Instructions for Telephones EE-8, EE-8-A and EE-8-B).

TO 16-40EE8-6 (Additional Instructions).

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Over-all Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Telephone EE-8-B (Export Packed)	0.8	14	12-1/4	8	21.5

TELEPHONE EE-8-B

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Over-all Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Telephone EE-8-B	Leather or canvas	1790-418645000 4B5008-B	9-9/16	7-11/16	3-1/2	9.75

TELEPHONE UNIT EE-105
(TELEPHONE EE-105)

FUNCTIONAL DESCRIPTION:

A portable telephone used by linemen and others primarily on lines over which carrier systems are operating. It may be used on noncarrier lines as well, and is particularly useful on such lines when they are equipped with voice-frequency repeaters. When used on carrier lines, the unit uses the voice frequency channel for communication purposes. The unit is arranged to prevent interference between it and the carrier channels. Because of such interference, other telephones such as EE-8 should not be used on carrier lines. The telephone unit consists of a carrying case in which are mounted a Telephone EE-8 body and associated hand set, and on a separate chassis a filter, impedance control network, two connection control keys, and four binding posts. When the unit is adjusted for use on carrier lines, the generator and ringer associated with EE-8 cannot be used, so a whistle of proper frequency is provided. When blown in front of the transmitter, it operates voice frequency ringing equipment at the circuit terminals. The telephone unit is used in field and depot testing telephone and associated equipment.

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	1790-419727350		3B8405
PROCUREM'T INFO.:			
PROCUREM'T COG.:	Army	DESIGN COG.:	Army, CSL
F.I.I.N.:		RDB IDENT. NO.:	10.4.7
	- Electronics Test Equipment -		EE-105

his project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TELEPHONE UNIT EE-105
(TELEPHONE EE-105)

RELATIONSHIP TO OTHER EQUIPMENT:

This unit is used in testing Amplifier Equipment AN/TRA-1, Remote Control Equipment AN/TRA-2, Switchboard BD-74, and Telephone Central Office Set TC-4.

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The circuity is identical to that of Telephone EE-8 except for the addition of resistance to the units' input, and insertion of a low-pass filter, combination Pi and Tee, to reduce mutual interference, and excessive loss to carrier frequencies on the line.

Power Supply: 3 volts, DC, 0.1 ampere provided by two 1.5 volt Batteries BA-30.

Frequency Range: (Hand generated at 1000 rpm with filter disconnected): 16 cycles per second.

Transmitter Output: 3 milliwatts (Over voice frequency range).

Receiver Resistance: 55 ohms (1600, 2400, or 4000 ohms may be added in series).

Holding Coil Resistance: 100 ohms, approximately.

Holding Coil Transmission Loss: Less than 0.4 decibel.

Talking Range: Up to 360 miles depending on type of wire, weather, and type of transmission system.

Band Pass of Filter: 250 to 2500 cycles per second (voice signal).

MANUFACTURERS' OR CONTRACTORS' DATA:

Stromberg-Carlson Telephone Manufacturing Company, Rochester, New York; Army Order No. 21923-PHILA-44-22.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 16-40EE105-5 (TM 11-2014) (Operating and Maintenance Instructions).

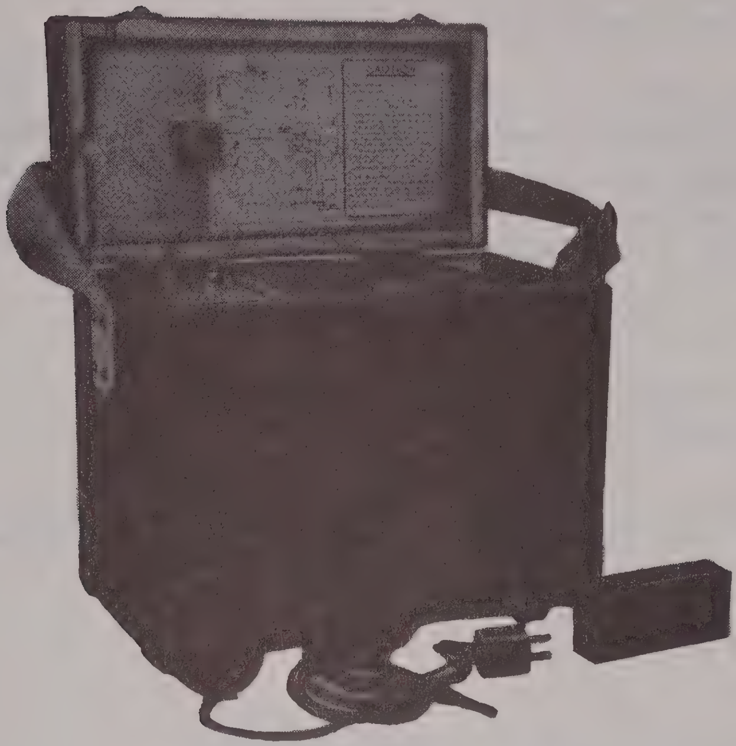
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Telephone Unit EE-105	Canvas	1790-419727350 3B8405	9-7/8	7-3/4	5	16

TEST SET I-51



FUNCTIONAL DESCRIPTION:

A portable, special purpose set used for locating faults in short lengths of non-loaded telephone cable. It may be used in locating grounds, shorts, crosses, split pairs, and wet spots; it is not intended for use in locating opens. In use, both ends of the faulty circuit must be disconnected, and a tone applied from the set. The fault completes a circuit to and from the set. The resulting magnetic field set up around the conductors of the circuit is detected by means of an exploring coil in series with a telephone receiver. The exploring coil is held against the cable and moved along between the tone source and the fault, the exact location of the fault being indicated by a marked reduction in volume or the complete absence of tone in the receiver when the exploring coil is moved past the fault. Sometimes it is advantageous to use a Varley or Murray loop test with a Wheatstone bridge to locate the fault approximately, after which the test set will locate it exactly. When an amplifier is used in conjunction with the receiver of the test set, some types of faults may be located more readily, particularly short circuits and split pairs.

	AIR FORCE	NAVY	ARMY
TYPE CLASS.	Standard		
STOCK NOS.	1600-327412000	F17-T-34225-5951	3F4051
PROCUREM'T INFO.:			
PROCUREM'T COG.:	Army	DESIGN COG.:	Army, CSL
F.I.I.N.:		FUNCTIONAL CLASS. NO.:	10.4.7

is project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TEST SET I-51

RELATIONSHIP TO OTHER EQUIPMENT:

This test set is used in testing Telephone Central Groups AN/GTA-( ), 2, 3, 3A, and 4. Similar to Weston Electric Model 1020C.

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: Circuity consists of a vibrator type tone supply, magnetic interrupter, exploring coil, and telephone headset receiver. Special feature is choice of high or low impedance output.

Power Supply: 6 volts, DC, supplied by four 1.5 volt Batteries BA-23.

Frequency Range: 800 to 1400 cycles per second.

Type of Transmission: Audio tone, interrupted audio tone.

Output Impedance:

Low: 100 ohms or less.

High: Over 100 ohms.

MANUFACTURERS' OR CONTRACTORS' DATA:

Western Electric Company, New York, New York; Army Order No. 13151 -PHILA-43.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 16-40I51-5 (TM 11-379) (Instruction Book).

SHIPPING DATA:

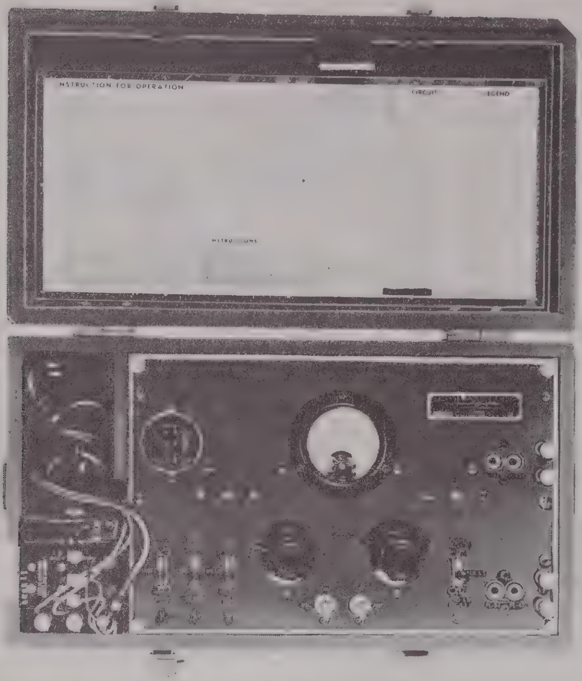
No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Over-all Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Test Set I-51 (Export Packed)	1.45				33

TEST SET I-51

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Over-all Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Test Set I-51 Including:	Wood	1600-327412000 F17-T-34225-5951 3F4051	10-1/2	12	6-1/2	20 (complete)
1	Tone Unit						
1	Exploring Coil		3F4051/C1	1-1/8	4	2	
1	Telephone Receiver and Cord		4C7592.8	cord 48 long			
1	Plug		4C7422A.2				

TEST SET I-61-A, B, & C



FUNCTIONAL DESCRIPTION:

These are portable, dry-battery-operated transmission measuring sets which are used primarily to measure losses or gains in circuits or equipment. Loop tests, straightaway line tests, transmission measurements through switchboard, line, trunk, or cord circuits, and transmission measurements through a repeater or amplifier are made using these sets.

RELATIONSHIP TO OTHER EQUIPMENT:

Interchangeable with Test Set AN/PTM-3, except for maintenance parts.

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The set consists of a sending audio oscillator, a receiving audio amplifier, and a local battery telephone. The receiver amplifier may be used at frequencies other than those generated by the test set oscillator. An external oscillator is required in obtaining frequency response of amplifiers, repeaters, and filter networks at various levels. Test indications are provided on a power level meter, two attenuator dials and four key switches.

Oscillator Circuit Data:

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.		F17-T-34225-6001(A) 6501(B, C)	3F4061(A, B, & C)
PROCUREM'T INFO.: Sig C Spec #71-492			
PROCUREM'T COG.: USA		DESIGN COG.: USA, SCEL, CSL	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.7	
- Electronics Test Equipment -		I-61-A, B, & C	

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

ELECTROMECHANICAL DESCRIPTION: (Continued)

I-61-A: Output is taken from plate circuit through plate-to-600 ohm transformer to a variable attenuator which reduces high output power of oscillator to 1 milliwatt or to -20 dbm or -40 dbm below 1 milliwatt.

I-61-B, and C: Uses a resistive feedback oscillator, buffer amplifier circuit. A variable attenuator in the plate circuit of the buffer reduces the high output power to 1 milliwatt or to -20 dbm or -40 dbm. A screw-adjustable type 50, 000 ohm rehostat shunted across the output transformer provides accurate oscillator impedance adjustment in the I-61-C.

Receiver Amplifier Circuit Data: Consists of a two-stage R-C coupled amplifier which uses a negative feedback for stabilization. Gain controls allow measurement of received power over a range of +15 dbm to -50 dbm in 0. 5 dbm steps.

Meter Circuit: A copper oxide rectifier power level meter is used to standardize the oscillator, receiving amplifier gain, and measuring circuit transmission characteristics.

Power Supply: 1. 5 volts, DC, and 90 volts, DC, supplied by the following:
Model A: 5 batteries, type BA-30;
3 batteries, type BA-56.
Models B and C: 2 batteries, type BA-30;
3 batteries, type BA-35;
2 batteries, type BA-36.

Frequency Range: Amplifier: 100 to 10, 000 cycles per second.
Oscillator: 500, 1000, 2500 cycles per second ±50 cycles.

Type of Transmission: Continuous wave.

Input Power Level: -50 to +15 dbm in steps of 0. 5 dbm.

Output Power Level: -40, -20, 0 dbm (0 dbm refers to 1 milliwatt into 600 ohms).

Input and Output Impedance: 600 ohms.

Loss Due to Impedance Mismatch: Approximately 0. 5 dbm for a mismatch of 2:1 ratio.

Attenuation Data:

I-61-A: Attenuation is accomplished by the use of a high impedance potentiometer and an "L" pad.

I-61-B and C: Attenuation is accomplished by the use of a high impedance "T" network and a grid potentiometer.

Accuracy: I-61-A: ±2. 0 ohms.
I-61-B: ±0. 5 ohm.
I-61-C: ±0. 5 ohm.

MANUFACTURERS' OR CONTRACTORS' DATA:

The Daven Company, 195 Central Avenue, Newark 4, New Jersey.

TUBE COMPLEMENT:

I-61-A: 2 JAN-3Q5-GT, 2 JAN-1N5-GT.
I-61-B and C: 1 JAN-1LN5, 1 JAN-3Q5-GT, 2 JAN-1G4-GT/G.

REFERENCE DATA AND LITERATURE:

TM 11-346 (TO 33A1-5-17-1) (Operation and Service Instructions).

TEST SET I-61-A, B, & C

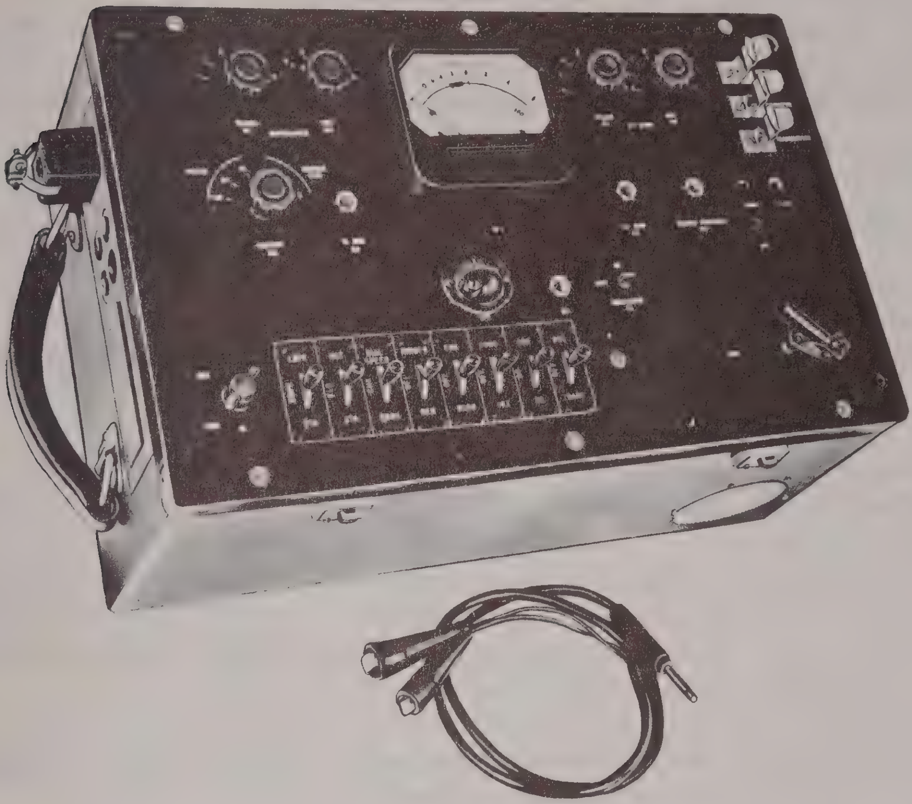
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Test Set I-61-A or:	Metal	F17-T-34225-6001 3F4061 (A)	8-1/4	10-7/8	18-1/4	21
1	Test Set I-61-B, C		F17-34225-6501 3F4061 (B, C)	11	10-1/8	18-1/4	47
	Including:						
1	Telephone EE-8-B						
1	Set Spare Tubes						
1	TM-11-346 Instruction Manual						
1	Set Battery Connectors						
1	External Battery Cord						

TEST SET I-142-A
(TEST SET, TELEPHONE, I-142-A)



FUNCTIONAL DESCRIPTION:

A portable, general purpose, composite test set designed for measuring the electrical characteristics of telephone equipment. It contains a Sound Source to drive the microphone or receiver in performance tests, a Measuring Circuit to measure the electrical output of microphones or receivers in the efficiency test, a Capacitor Test Circuit to check the leakage resistance of capacitors, a Generator Test Circuit to check on voltage output, a Ringer Test Circuit, and Insulation Resistance Test Circuit, a Dial Test Circuit to indicate the rate of operation of the dial pulsing contacts, a Continuity Test Circuit, four Instrument Test Circuits for testing the efficiency of telephone instruments under simulated line conditions, and a Sound Calibrator to test and calibrate the test set sound source. The meter is calibrated in decibels and DC volts.

RELATIONSHIP TO OTHER EQUIPMENT:

Same as Test Set I-142 except that Sound Calibrator TS-550/G is furnished as a component of the "A" model and not of the older model.

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.			3F4142A
PROCUREM'T INFO.: Spec. MIL-T-11003(SigC) dated 12 March 1951			
PROCUREM'T COG.: Army		DESIGN COG.: Army, CSL	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.7	
- Electronics Test Equipment -			I-142-A

his project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U.S.A.

TEST SET I-142-A
(TEST SET, TELEPHONE, I-142-A)

ELECTROMECHANICAL DESCRIPTION:

Power Supply: 3 volts DC supplied by two 1.5 volt Batteries BA-23, 12 volts DC supplied by two 6 volt Batteries BB-49, 24 volts DC supplied by four 6 volt Batteries BA-210/U, 135 volts DC supplied by three 45 volt Batteries BA-26.

Sound Source:

Circuit Information: Consists of a vibrator driving a controlled diaphragm receiver unit radiating into the open air.

Frequency Range: 500 to 2500 cycles per second.

Acoustic Output: 10 dynes per square centimeter.

Measuring Circuit:

Circuit Information: Contains a variable range vacuum-tube-type volume indicator.

Frequency Range: 300 to 5000 cycles per second.

Voltage Range: 0.0002 to 3.8 volts.

Input Impedance: 10,000 ohms.

Capacitor Test Circuit:

Circuit Information: A relaxation type oscillator is used in which the capacitor under test forms the capacitive elements.

Testing Range: 0.05 to 4 microfarads. Indicates open-circuited units and those having a leakage resistance of less than 10 megohms.

Generator Test Circuit:

Circuit Information: The generator under test is rated on the voltage it delivers to a 1000 ohm load measured on the test set meter.

Ringer Test Circuit:

Circuit Information: Consists of a hand operated generator and resistors arranged to supply minimum operating currents of approximately 16-2/3 cycles per second to ringers of three different impedances.

Insulation Resistance Test Circuit:

Circuit Information: The output of the test set generator is applied to the equipment under test with the test set meter connected to measure the leakage current.

Resistance Range: 0 to 1.0 megohms.

Peak Voltage: 200 volts into 200,000 ohms.

Dial Test Circuit:

Circuit Information: A resistance-capacitance network associated with the meter indicates the rate of operation of the dial pulsing contacts.

Continuity Test Circuit:

Circuit Information: A buzzer and lamp are provided to facilitate point to point tests for continuity of wiring.

Instrument Test Circuits:

Circuit Information: Four circuits are provided for testing the efficiency of telephone instruments under simulated line conditions: (1) a 600-ohm impedance terminated line circuit for local battery or sound powered telephones; (2) a 24-volt, 361-ohm DC resistance, 320-ohm alternating current impedance ter-

(Continued)

TEST SET I-142-A
(TEST SET, TELEPHONE, I-142-A)

ELECTROMECHANICAL DESCRIPTION: (Continued)

minated line circuit for common battery telephones; (3) a 24-volt, 361-ohm DC resistance of 3-volt, 4-ohm DC resistance power efficiency circuit adjustable to match impedances of 30, 60, 75, 150, and 300 ohms for testing carbon type microphones; (4) a circuit providing resistive loads to match impedances of 128, 256, 512, 1024, 5000, and 10,000 ohms for testing receivers and magnetic microphones.

Sound Calibrator TS-550/G:

Circuit Information: Consists of three calibrator receiver units, each unit is stamped with the value in decibels corresponding to the voltage required to produce the 10 dyne pressure at the sound source screen.

MANUFACTURERS' OR CONTRACTORS' DATA:

Western Electric Company, 120 Broadway, New York, New York; SigC Order No. 11390-PHILA-47.

TUBE COMPLEMENT:

1 JAN-12SG7, 1 JAN-12SN7GT.

REFERENCE DATA AND LITERATURE:

TM 11-2062 (TO 16-40I142-5) (Instruction Book).

SHIPPING DATA:

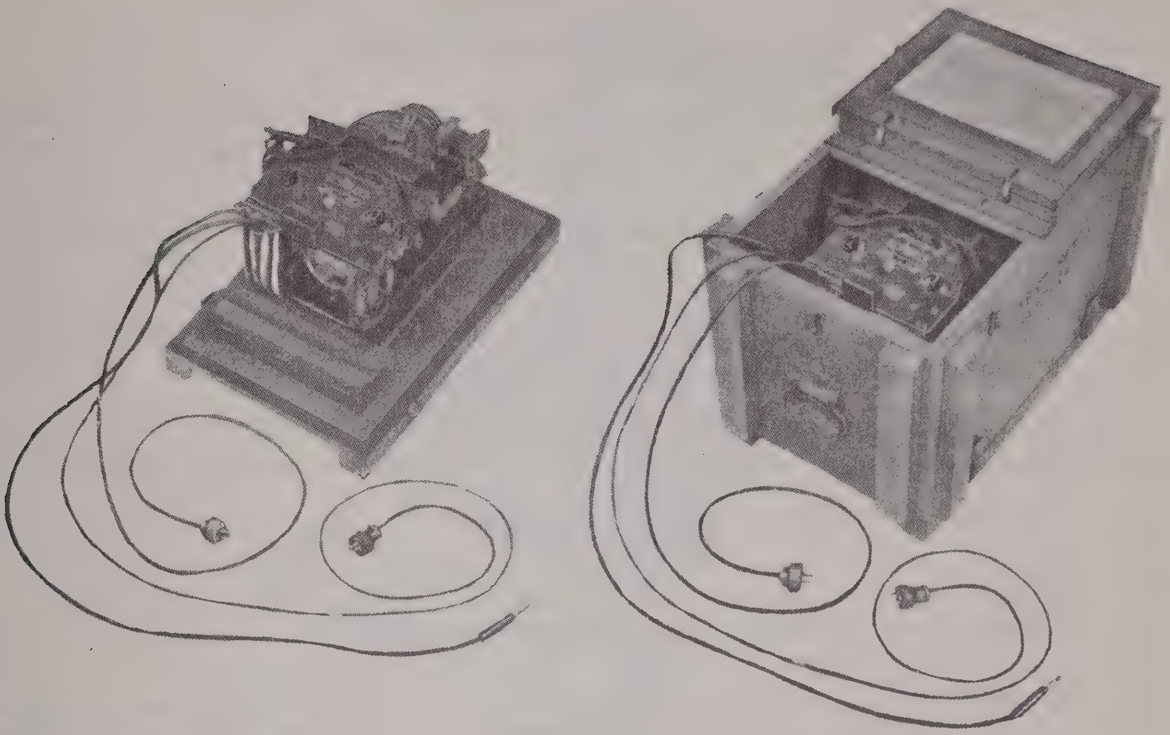
No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Over-all Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Test Set I-142-A (Export Packed)	4.34	15-3/8	27	17-1/2	90

TEST SET I-142-A
(TEST SET, TELEPHONE, I-142-A)

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Over-all Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Test Set I-142-A	Metal	3F4142A	9	19	12	40
1	Sound Calibrator TS-550/G		3F4325-550	2-7/8	9-3/4	4-3/4	5
1	Test Cord			36 long			
1	Tube JAN-12SG7 (Spare)						
1	Tube JAN-12SN7GT (Spare)						
2	Technical Manual TM 11-2062			10	8-1/2		

TEST SET TS-2/TG
(TEST SET, TELETYPEWRITER, TS-2/TG)



FUNCTIONAL DESCRIPTION:

A portable, general purpose teletypewriter signal distortion test set arranged to transmit undistorted or distorted signals for testing teletypewriter circuits and equipment. A test circuit is built into the test set to provide a means for measuring the bias tolerances of teletypewriter receiving equipment. The principle uses include: determining operating margins of start-stop teletypewriter mechanisms, testing the efficiency of the selecting mechanisms in teletypewriter selector units, calibrating the bias meters associated with Line Unit BE-77 and Switchboard BD-100. The test set is equipped with a governed motor that can be adjusted for operation with British equipment.

RELATIONSHIP TO OTHER EQUIPMENT:

Same as Teletype Corporation No. ED57GG Signal Distortion Test Unit.

ELECTROMECHANICAL DESCRIPTION:

Power Supply: 100 to 115 volts, AC, 50 to 60 cycles per second, single phase; 115 volts, DC (local test circuit).

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.	Standard		
STOCK NOS.		F16-Q-302970-100	4TED57GG
PROCUREM'T INFO.:	Army Spec. 71-690		
PROCUREM'T COG.:	Army	DESIGN COG.:	Army, CSL
F.I.I.N.:		FUNCTIONAL CLASS. NO.:	10.4.7
	- Electronics Test Equipment -		TS-2/TG

his project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TEST SET TS-2/TG
(TEST SET, TELETYPEWRITER, TS-2/TG)

ELECTROMECHANICAL DESCRIPTION: (Continued)

Type of Transmission: Distorted and Undistorted Signals.

Distorted Signals:

Amount of distortion is adjustable from 0 to 50% (usually set for 35% distortion).

Types: Marking or spacing end distortion, or marking or spacing bias.

Undistorted Signals:

Types: R, Y, SPACE, or a standard test message (continuous transmission).

Test Message: 68 character line.

Type of Motor: Governed.

Speed: 368.2 operations per minute. May be adjusted to 404 operations per minute for operations with British equipment.

MANUFACTURERS' OR CONTRACTORS' DATA:

Teletype Corporation, 1400 West Wrightwood Avenue, Chicago, Illinois.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 16-35TS2-5 (TM 11-2208) (Maintenance Instructions).

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Test Set TS-2/TG (Export Packed)	3				160

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Test Set TS-2/TG	Wood	F16-Q-302970-100 4TED57GG	17	23	14	70

TEST SET TS-27B/TSM

FUNCTIONAL DESCRIPTION:

A portable, general purpose equipment used to test wire communication lines and locate faults. It is used for direct measurement of conductor and insulation resistance and for the location of grounds, crosses, and shorts. It is also used for measuring capacitance and for locating opens in wire lines. This set is a single self-contained unit supplied with four leads for making rapid connection to wire communication lines, and a cord for use when it is more convenient to plug into a switchboard than to connect directly to a test line. A circuit diagram, a conversion chart (dial divisions to microfarads), and a chart of condensed instructions, are all included with the equipment. Indication is provided on a galvanometer null-meter calibrated in thirty arbitrary divisions, fifteen divisions on each side of zero, and a slide wire dial with four scales marked "open", "ground", "ohms", and "megohms". Connections are provided for a telephone, with other connections provided for running telephone lines to the distant end of the test line, to facilitate transmission of operator's instructions to an assistant.

	AIR FORCE	NAVY	ARMY
TYPE CLASS.	Standard		
STOCK NOS.	1600-327878220		3F4325-27
PROCUREM'T INFO.:	Spec. MIL-T-2487 (USA)		
PROCUREM'T COG.:	Army	DESIGN COG.: Army, CSL	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.7	
	- Electronics Test Equipment -		TS-27B/TSM

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Betheada, Md. - Multilithed in U. S. A.

TEST SET TS-27B/TSM

RELATIONSHIP TO OTHER EQUIPMENT:

This test set is similar to Bell Telephone Laboratories' fault locating Test Set Type D-166237 with several physical modifications and the addition of a third resistance range.

It is interchangeable with TS-27/TSM and the TS-27A/TSM except for maintenance parts and slightly different weight.

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: This is a modified Wheatstone bridge using a slide wire potentiometer for two variable resistance arms. It can be modified for capacitance measurement, to an AC bridge circuit, using the battery working voltage as plate voltage for the internal oscillator.

Power Supply: 90 volts, DC, supplied by 2 Battery BA-59 (45 volts), or 2 Battery BA-53 (45 volts), or 2 Battery BA-63 (45 volts).

1.5 volts, DC, supplied by 1 Battery BA-15-A (1.5 volts), or 2 Battery BA-30 (1.5 volts) and

4.5 volts, DC, supplied by 1 Battery BA-31 (4.5 volts).

Frequency Range: (Internal Oscillator): 20 cycles per second.

Resistance Measuring Range: 0 to 50 megohms in 4 scales.

Capacitance Measuring Range: 0.075 to 3.0 microfarads, equivalent parallel capacitance.

Capacitance Dissipation Factor: Not over 0.256.

Galvanometer Internal Resistance: 250 ohms coil resistance.

Galvanometer Sensitivity: 1 microampere per division.

Resistance Measurements Accuracy: Ohms ±2.0%. Ohms X 100 ±5.0%.

Capacitance Measurements Accuracy: ±5.0%.

Oscillator Frequency: 20 cycles per second ±3 cycles per second.

MANUFACTURERS' OR CONTRACTORS' DATA:

Western Electric Company, New York, New York; USAF MIPR 33-604-3-17C-17.

TUBE COMPLEMENT:

1 JAN-1LN5, 1 JAN-3Q5GT.

REFERENCE DATA AND LITERATURE:

TO 16-35TS27-5 (TM-11-2057) (Test Set TS-27/TSM).

TO 16-35TS27-6 (Operation and Maintenance Instructions).

SHIPPING DATA:

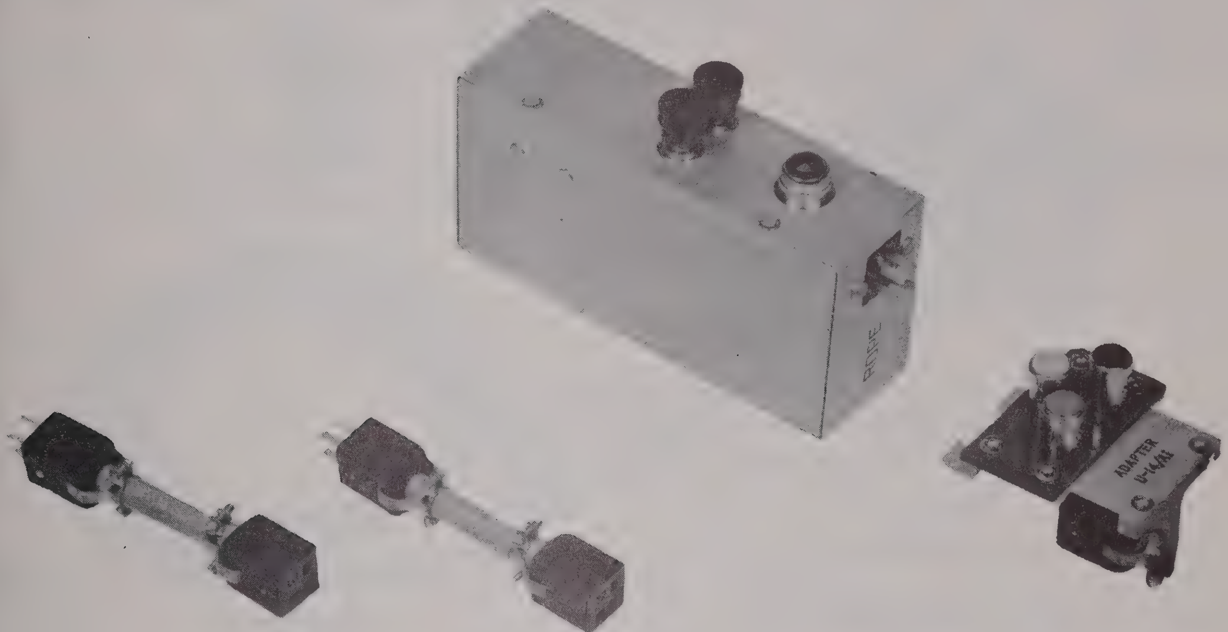
No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Over-all Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Three Each Test Set TS-27B/TSM	6.11	16-1/2	17-3/4	36	147

TEST SET TS-27B/TSM

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Over-all Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Test Set TS-27B/TSM Including:	Aluminum	1600-327878220 3F4325-27	9	13-1/2	13	23
5	Test Lead		3E7215	60 long			0.625
1	Patch Cord		3E4036-48-3	48 long			0.25
						Total:	30

TEST SET TS-161/AI
(TEST SET, AUDIO, TS-161/AI)



FUNCTIONAL DESCRIPTION:

A portable, battery operated test equipment used to check the continuity of the conductors assembled on a tow rope furnished with Interphone Equipment, AN/AIA-1 and AN/AIA-1A, as well as those ropes having the conductors incorporated as the core of each rope strand. Its general function is to test electrically the conductors for open and short circuits on the tow rope prior to hook-up on the glider and the tow plane.

RELATIONSHIP TO OTHER EQUIPMENT:

TS-161/AI is part of AN/AIM-1 and is generally furnished in wooden Carrying Case CY-112/AIM-1 together with Test Sets TS-162/AI and TS-163/AI.

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: Consists of a lamp, two switches and a four-terminal plug, wired to make the various circuit combinations required to check the three conductors. Continuity is indicated by the lighting of the lamp. A test rod is provided to short

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-801319-656		3F4325-161

PROCUREM'T INFO.:	
PROCUREM'T COG.: USAF	DESIGN COG.: USAF, C&N
F.I.I.N.:	FUNCTIONAL CLASS. NO.: 10.4.7
- Electronics Test Equipment -	TS-161/AI

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TEST SET TS-161/AI
(TEST SET, AUDIO, TS-161/AI)

ELECTROMECHANICAL DESCRIPTION: (Continued)
the conductors together at the glider end of the tow rope. An adapter is also provided to check the three conductors in a tow rope terminating at free ends instead of plugs or sockets.

Power Supply: 3 volts supplied by 2 Batteries, BA-30 or BA-130 (1.5 volts).

MANUFACTURERS' OR CONTRACTORS' DATA:

Jefferson-Travis Radio Manufacturing Corporation, 76 Ninth Avenue, New York 11, New York; Order No. 1107-44, 6 September 1944; Approximate Cost per Unit, $25.37.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 16-35TS161-2 (Maintenance Instructions).
TO 16-35TS161-2 (Parts Control List).

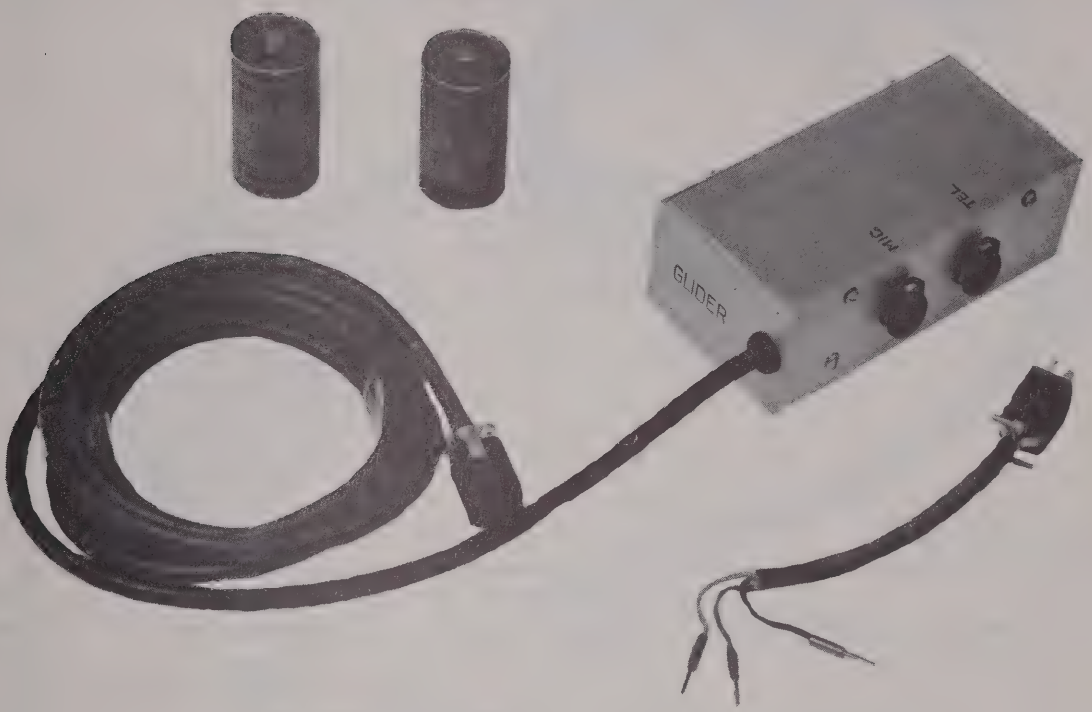
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Test Set TS161/AI (Shelf Package, Water-Resistant Carton)	0.08	7	5	4	1.5

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Test Set TS-161/AI	Metal	7CAC-801319-656 3F4325-161	6-5/6	3-5/8	1-7/8	1.0
2	Test Rod MX-143/AI		3F3989-143	1	1	4	0.06
1	Adapter U-14/AI		3F3-14	3	3	3	0.19
2	Lamp 48 (Spares)		8800-442620 2Z5879-2				

TEST SET TS-162/AI
(TEST SET, AUDIO, TS-162/AI)



FUNCTIONAL DESCRIPTION:

A portable, battery operated test equipment used to check the operation and wiring of the glider components of Interphone Equipments AN/AIA-1 and AN/AIA-1A. It is essentially a substitute for the interphone amplifier of the tow plane.

RELATIONSHIP TO OTHER EQUIPMENT:

TS-162/AI is part of AN/AIM-1 and is generally furnished on initial issue in Carrying Case CY-112/AIM-1 along with Test Sets TS-161/AI and TS-163/AI.

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: Consists of a battery and transformer wired so that it connects the microphone to headset circuit. A cord is provided to check the interphone equipment installed in the glider.

Power Supply: 3 volts supplied by 2 Batteries, BA-30 or BA-130 (1.5 volts).

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-801319-658		3F4325-162
PROCUREM'T INFO.:			
PROCUREM'T COG.: USAF		DESIGN COG.: USAF, C&N	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.7	
- Electronics Test Equipment -			TS-162/AI

his project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TEST SET TS-162/AI
(TEST SET, AUDIO TS-162/AI)

MANUFACTURERS' OR CONTRACTORS' DATA:

Jefferson-Travis Radio Manufacturing Corporation, 76 Ninth Avenue, New York 11, New York; Order No. 1107-44, 6 September 1944; Approximate Cost per Unit, $27.47.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 16-35TS162-2 (Maintenance Instructions).
TO 16-35TS162-2 (Parts Control List).

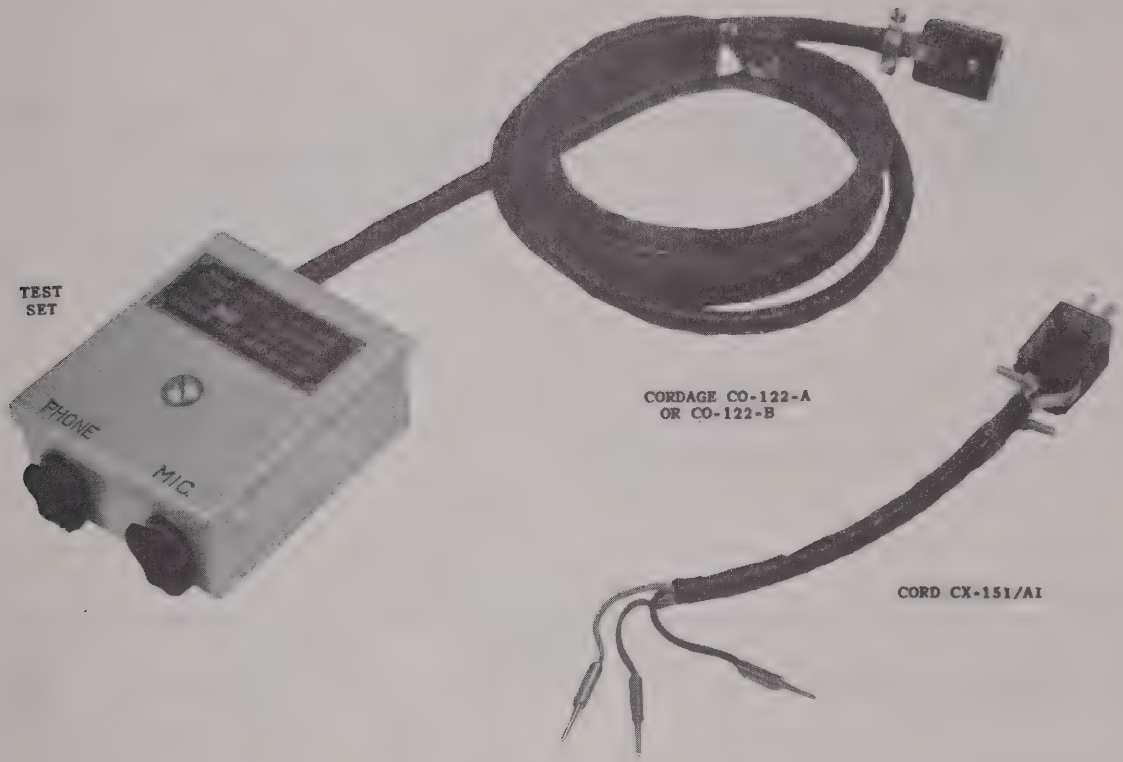
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Test Set TS-162/AI (Shelf Package, Water-Resistant Carton)	0.08	7	5	4	2.3

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Test Unit TS-162/AI		7CAC-801319-658 3F4325-162	6	3-1/4	1-1/8	1.5
1	Cord CX-151/AI		1600-322849982 3E6000-151	96 long			0.06

TEST SET TS-163/AI
(TEST SET, AUDIO, TS-163/AI)



FUNCTIONAL DESCRIPTION:

A portable test equipment used to check the wiring and operation of the tow plane components of Interphone Equipments AN/AIA-1A and AN/AIA-1 installed in a tow plane. The test set assumes the position of the Glider Interphone Station.

RELATIONSHIP TO OTHER EQUIPMENT:

Part of AN/AIM-1 and is generally furnished on initial issue in Carrying Case, CY-112/AIM-1 along with Test Sets TS-161/AI and TS-162/AI.

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: Contains a Jack JK-33, a Jack JK-34 and a length of cordage terminating in a socket type plug (Jones 5-304-cct). By attaching the socket from the test set to the Plug Assembly MX-15/AIA-1 (located in the vicinity of the rope mechanism) on the tow plane, and Headset HS-33 and Microphone T-17 to the test set, the wiring may be tested.

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-801319-67		3F4325-163
PROCUREM'T INFO.:	ENG ES-C-24891		
PROCUREM'T COG.:	USAF	DESIGN COG.:	USAF, C&N
F.I.I.N.:		FUNCTIONAL CLASS. NO.:	10.4.7
	- Electronics Test Equipment -		TS-163/AI

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TEST SET-163/AI
(TEST SET, AUDIO, TS-163/AI)

ELECTROMECHANICAL DESCRIPTION: (Continued)
Power Supply: None.

MANUFACTURERS' OR CONTRACTORS' DATA:
Jefferson-Travis Radio Manufacturing Corporation, 76 Ninth Avenue, New York 11, New York; Order No. 1107-44, 6 September 1944; Approximate Cost per Unit, $20.84.

TUBE COMPLEMENT:
None.

REFERENCE DATA AND LITERATURE:
TO 16-35TS163-2 (Maintenance Instruction).
TO 16-35TS163-2 (Parts Control List).

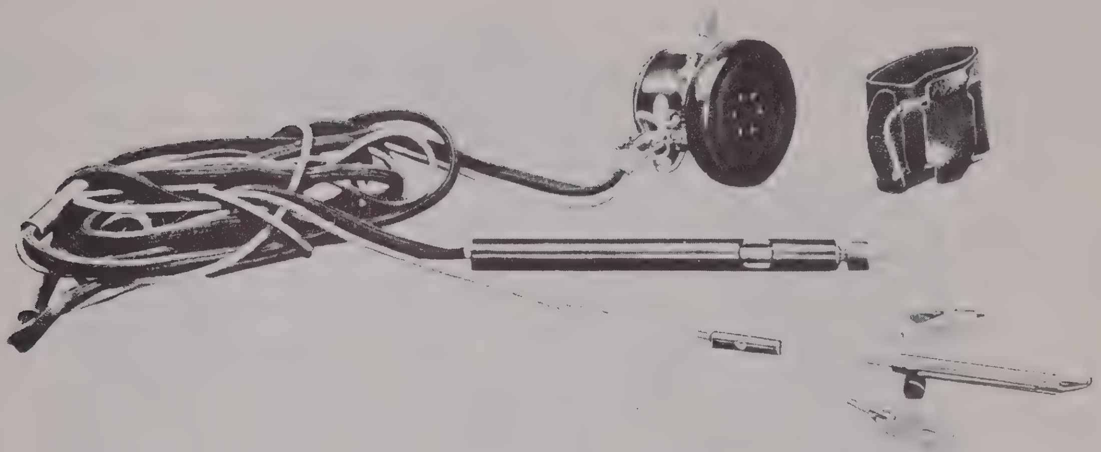
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Test Set, TS-163/AI (Shelf Package, Water Resistant Carton)	0.03	4	4	3	1.8

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Test Set TS-163/AI		7CAC-801319-67 3F4325-163	2-3/4	3-3/8	1-3/8	1.5
1	Cord CX-151/AI		1600-322849982 3E6000-151	96 long			0.06

TEST SET, TELEPHONE TS-190/U



FUNCTIONAL DESCRIPTION:

A portable, general purpose, high-resistance test receiver designed to detect the voltage at a given point within a telephone or telegraph circuit and to detect differences in voltage between points within the circuit. The set may be used for monitoring or for making continuity tests on working circuits without interfering with service. When tracing circuits the test set is used to listen for tones.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The receiver includes one lead terminating in a test prod, and one lead terminating in a small female connector into which fits a connecting clip, a test prod, or another connecting tool. A switch makes it possible to shunt out the resistance of the adapter which is included. A click in the receiver indicates a completed circuit through the test set between negative battery and ground.

Power Supply: None.

Receiver Resistance: 1000 or 50000 ohms.

MANUFACTURERS' OR CONTRACTORS' DATA:

Western Electric Company, 120 Broadway, New York, New York; Part No.

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.	Standard		Standard
STOCK NOS.			3F4316.1
PROCUREM'T INFO.: Spec. MIL-T-12681			
PROCUREM'T COG.: USA		DESIGN COG.: USA, SCEL	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.7	
- Electronics Test Equipment -			TS-190/U

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

MANUFACTURERS' OR CONTRACTORS' DATA: (Continued)
D-173231, Spec. No. 67B.

TUBE COMPLEMENT:
None.

REFERENCE DATA AND LITERATURE:

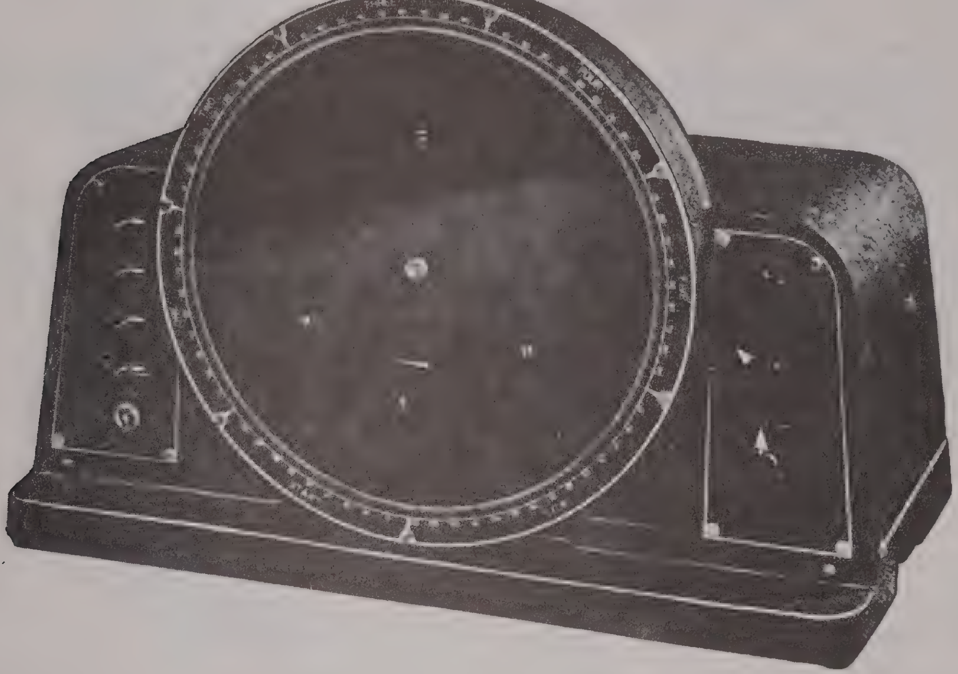
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Test Set, Telephone TS-190/U		3F4316.1	12	12	5	5
1	Head Set						
1	Test Prod		3F3964.1/PL	6 long	7/16 dia		

DISTORTION TEST SET TS-383A/GG
(TEST SET, TELETYPEWRITER, TS-383A/GG)



FUNCTIONAL DESCRIPTION:

A portable, general purpose, motor driven unit used for testing teletype start-stop printing telegraph circuits and start-stop selectors. It will transmit a test message either undistorted or with a controlled degree of distortion. The set will measure accurately the impulse lengths of 7.42 unit code signals from an external source. It will check the operation of relays or start-stop regenerative repeaters in a local circuit. A stroboscope indicates signal length and the amount of bias in distortion.

RELATIONSHIP TO OTHER EQUIPMENT:

Same as Teletype Corporation Model DXD4DTS Distortion Test Set.

ELECTROMECHANICAL DESCRIPTION:

Power Supply: 110 volts, AC, 60 cycles per second, single phase.
Type of Transmission: Undistorted and distorted signals.

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.	Standard		
STOCK NOS.		F17-T-350012-621	3F4312-383A
PROCUREM'T INFO.:			
PROCUREM'T COG.: Army		DESIGN COG.: Army, CSL	
F.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.7	
	- Electronics Test Equipment -		TS-383A/GG

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

DISTORTION TEST SET TS-383A/GG
(TEST SET, TELETYPEWRITER, TS-383A/GG)

ELECTROMECHANICAL DESCRIPTION: (Continued)

Undistorted Signals:

Test Signals: Standard test message, letters R, Y, T, O, M, V, and blank or code length marking impulses.

Distorted Signals:

Types: Marking or spacing bias, or marking or spacing end distortion.

Amount Distortion: Adjustable from 0 to 100%.

Operating Speed: 368 operations per minute.

Stability: For best results a synchronous motor unit (with a regulated AC power source) should be used. If regulated AC power is not available, governed motors may be used, but the signal viewed on the stroboscope will be somewhat unstable.

MANUFACTURERS' OR CONTRACTORS' DATA:

Teletype Corporation, 1400 W. Wrightwood Ave., Chicago, Illinois; Contract No. NObsr-42423; Signal Corps Order No. 9175-Phila-48; Approximate Cost per Unit, $975.00.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

NAVSHIPS 91161 (Instruction Book).

TO 16-35TS383-5 (Instruction Book).

SHIPPING DATA:

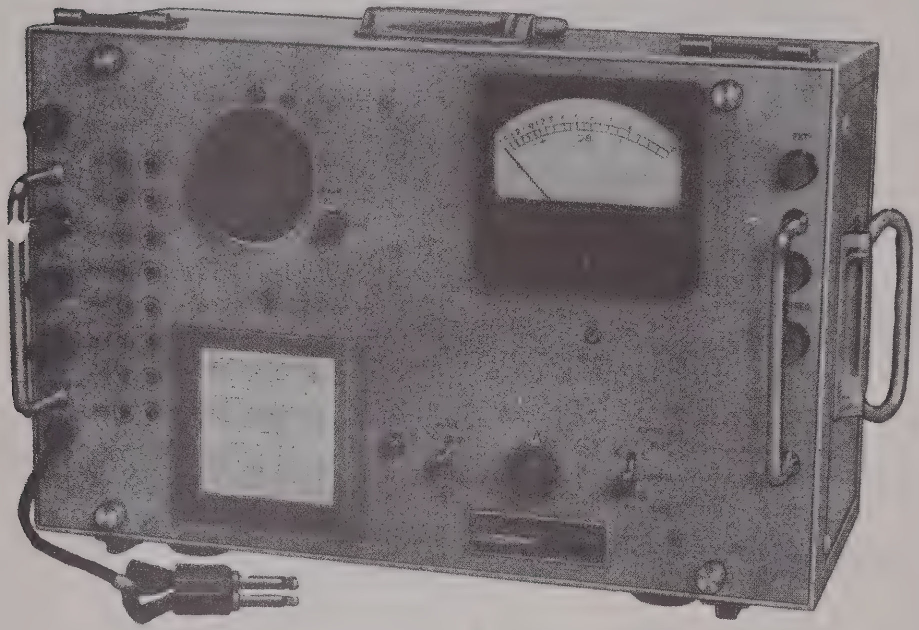
No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Distortion Test Set TS-383A/GG (Export Packed)	11-1/2 approx.				225

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Distortion Test Set TS-383A/GG Including:	Metal	F17-T-350012-621 3F4312-383A	13-1/2	19	14	125
1	Motor Unit MU4 and gears 96473 (synch. for use with regulated power supply)			6	9	5-1/2	12

271

TRANSMISSION MEASURING SET TS-559A/FT
(TEST SET, TELEPHONE, TS-559A/FT)



FUNCTIONAL DESCRIPTION:

A portable, general purpose, battery-operated test set designed to measure noise on telephone circuits. It is also used for transmission measurements, as a flat amplifier, and as an oscillator. The measuring set is made up of an amplifier, an attenuator, a decibel dial, a decibel meter, and an equalizer network. The high impedance of the telephone receiver provides a sensitive listening set for use by the tester while engaged in making noise measurements. The set has a DC milliammeter calibrated in decibels which is used in checking the condition of the filament and plate batteries and in calibration. The readings on the decibel dial are associated with meter readings in computing measurements.

RELATIONSHIP TO OTHER EQUIPMENT:

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.			3F4265A
PROCUREM'T INFO.:			
PROCUREM'T COG.: Army		DESIGN COG.: Army, CSL	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.7	
	- Electronics Test Equipment -		TS-559A/FT

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TRANSMISSION MEASURING SET TS-559A/FT
(TEST SET, TELEPHONE, TS-559A/FT)

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The input circuits consists of input coils and switching arrangements for the various types of tests. Attenuation at the input of the amplifier provides for measurement of a wide range of noise amplitude. The audio amplifier, which consists of three stages of voltage, raises the noise level for meter indication. The output of the amplifier includes a feedback circuit used for calibration. The amplified alternating currents are rectified by means of germanium crystals.

Power Supply: 3 volts supplied to filaments by two BA-23 Batteries (1.5-volts); 135 volts supplied to plates by six BA-2 Batteries (22.5-volts).

Noise Magnitude Measuring Range: 10 to 85 decibels below reference level at frequencies up to 10,000 cycles per second.

Input Voltage: 56 volts,DC,maximum.

Input Impedance: Approximately 500,000 ohms.

MANUFACTURERS' OR CONTRACTORS' DATA:

The Daven Company, 195 Central Avenue, Newark, New Jersey; Type No. 34B; Drawing No. 2809; Signal Corps Order Number 19673-PHILA-49.

TUBE COMPLEMENT:

3 JAN-1U4.

REFERENCE DATA AND LITERATURE:

TO 16-35TS559-5 (TM11-2094) (Operation and Maintenance Instructions).

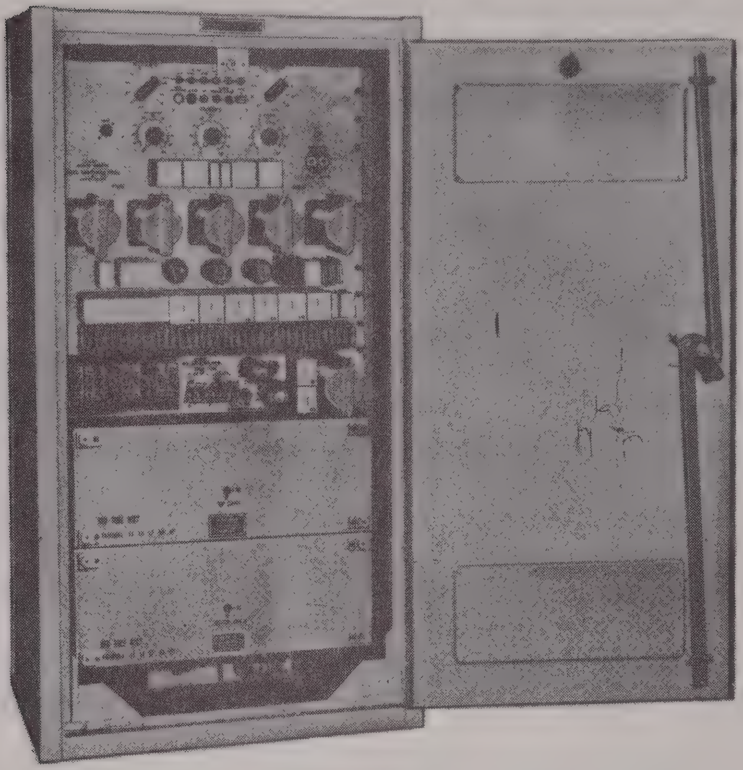
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Transmission Measuring Set TS-559A/FT (Export packed in moisture- vapor-proof container in wooden crate)	2.9	14	23	15-1/2	58

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Transmission Measuring Set TS-559A/FT	Metal	3F4265A	10	18	11-1/2	56 including batteries

TELEGRAPH MONITOR TS-577/FG



FUNCTIONAL DESCRIPTION:

A stationary, depot type, general purpose, automatic telegraph service monitoring equipment for audible and visual measurements of telegraph distortion. It continuously monitors telegraph signals in the local or DC loop circuits of telegraph terminals and repeaters. The monitoring set is connected in series in the circuit like a teletypewriter and observes each signal. The length of each unit signal is measured to determine whether the signal has been shortened by distortion to such an extent that it fails to properly actuate the teletypewriter mechanism. If more than a certain number of distorted signals is registered in a given time interval, an alarm is sounded. Indication also is given on a red light at the top of the front door of the equipment cabinet.

RELATIONSHIP TO OTHER EQUIPMENT:

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	1730-404235500		4A1485
PROCUREM'T INFO.:			
PROCUREM'T COG.: Army		DESIGN COG.: Army, CSL	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.7	
- Electronics Test Equipment -			TS-577/FG

his project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TELEGRAPH MONITOR TS-577/FG

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The set contains three fundamental circuits, consisting of a hit detector circuit, a hit counter circuit, and a delay timer. Also, there are filters in all incoming signal leads, and filters and shielding in the power rectifiers, to reduce radio-frequency interference. The hit detector consists of capacitors which charge during a signal unit and a vacuum tube which operates if the negative charge voltage attains or exceeds a predetermined value. The hit counter circuit counts the number of operations of the tube in the hit detector circuit by causing the charge on a small condenser to add to the charge on a large condenser each time the hit detector tube operates. When the charge on the large condenser exceeds a predetermined value after a given time interval, a second tube operates to bring in an alarm. Between the large condenser and the second tube is the delay timer which connects the large condenser to the second tube only after a predetermined time which is set into the delay timer. This part of the set contains a large capacitor which is charged through a high resistance and a tube which operates when the capacitor voltage exceeds a particular value depending on the setting of the resistor. Circuitry in this system is arranged so that a recording meter of the multiple-pen type may be associated with the set to record individual hits, alarms, and circuit usage on separate pens. Two power rectifiers, each consisting of two 3-element gas-filled tubes, provide full-wave rectification of the input voltage. These are followed by variable bias type voltage regulators.

Power Supply: 115 or 230 volts, AC, 50 to 60 cycles per second, single phase, 300 watts.

Response Ranges: Neutral signals, 60 milliamperes Polar signals, ±30 milliamperes.

Speed of Transmission, 60, 75, 100, or 120 words per minute.

Interference Filter Frequency Response: 0.3 to 15 megacycles per second.

MANUFACTURERS' OR CONTRACTORS' DATA:

Western Electric Company, New York, New York; W.E. Spec. No. X-66421-A.

TUBE COMPLEMENT:

3 JAN-2050, 4 JAN-394A.

REFERENCE DATA AND LITERATURE:

TO 16-35TS577-5 (TM 11-2053) (Operation and Maintenance Instructions).

SHIPPING DATA:

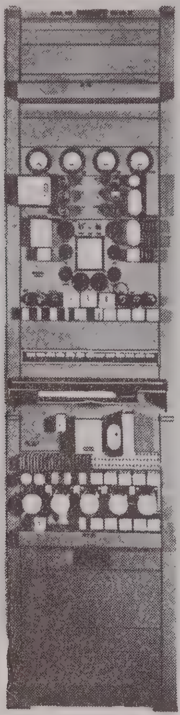
No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Over-all Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

TELEGRAPH MONITOR TS-577/FG

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Over-all Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Telegraph Monitor TS-577/FG	Steel	1730-404235500 4A1485	42	22-1/4	17	300
1	Set Spare Parts						

TELETYPEWRITER TEST SET TS-611/FG



FUNCTIONAL DESCRIPTION:

A fixed-plant, general purpose, test instrument designed to measure the quality of teletypewriter signals on a working circuit by comparing, at the time of transition of the teletypewriter signal, the charge on a capacitor with a reference voltage. The extent of departure of the capacitor voltage from the reference voltage indicates the amount of distortion and bias present. The percent distortion and bias are indicated on meters. The test set is arranged for a maximum of ten circuit appearances at telegraph or toll test boards, at service boards, or at line concentrating units.

RELATIONSHIP TO OTHER EQUIPMENT:

Same as Western Electric Company Model No. 118C2.

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: Consists of the following units: a relay rack for ten extension circuits, a meter panel, a power supply unit with screwdriver-adjusted potentiometers, a distributor panel, and a strip of jacks, switches, and signal lamps for

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.		F16-Q-304784-200	
PROCUREM'T INFO.:			
PROCUREM'T COG.: Army		DESIGN COG.: Army, CSL	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.7	
- Electronics Test Equipment -			TS-611/FG

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TELETYPEWRITER TEST SET TS-611/FG

ELECTROMECHANICAL DESCRIPTION: (Continued)

cross connecting the various circuits for calibrating the equipment.

Power Supply: 115 volts, AC, 60 cycles per second, single phase, 2 amperes; +130 volts, DC, 0.2 amperes; -130 volts, DC, 0.2 amperes; one 48 volt, DC, battery (negligible drain); one 48 volt, DC, battery, 0.02 amperes; one 48 volt, DC, battery, 0.25 amperes.

Range: The set is arranged to measure either 5 or 6 digit teletypewriter signals of 60,75, or 100 speed. It can be used with 0.02 or 0.0675 ampere neutral circuits, 0.035 ampere polar circuits, or 48 volt inverse neutral circuits.

MANUFACTURERS' OR CONTRACTORS' DATA:

Western Electric Company, 120 Broadway, New York, New York; Contract No. NObsr-43375; Approximate Cost per Unit, $2100.00 including equipment spares.

TUBE COMPLEMENT:

1 RETMA-2A5, 2 JAN-338A, 1 JAN-6F8G, 3 JAN-OC3/VR-105, 1 JAN-6H6, 2 JAN-6Y6G, 1 JAN-OD3/VR 150, 3 JAN-56, 1 JAN-80, 1 JAN-83.

REFERENCE DATA AND LITERATURE:

NAVSHIPS 91237 (Instruction Book).

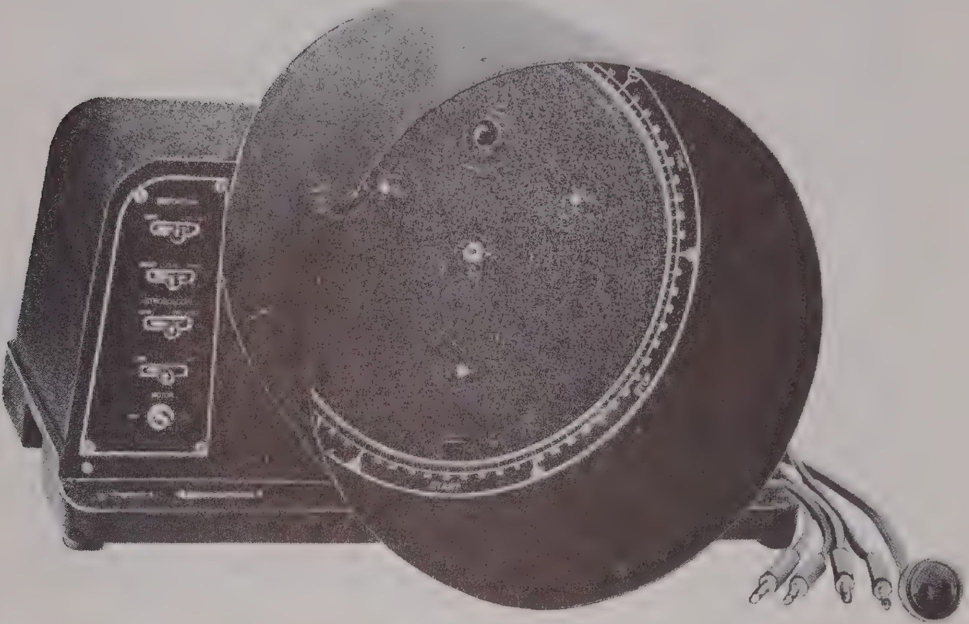
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Teletypewriter Test Set TS-611/FG		F16-Q-304784-200	84	21-1/2	12	

TELETYPEWRITER TEST SET TS-652/GG



FUNCTIONAL DESCRIPTION:

A portable general purpose distortion controlled equipment that provides signals for performance tests of teletypewriter output. It transmits test messages of repetition of the letters R, Y, T, O, M, and V, with blank or unit marking pulse, either distorted or with a controlled degree of distortion. The set includes a stroboscopic means for visually indicating accuracy of received teletypewriter signals.

RELATIONSHIP TO OTHER EQUIPMENT:

Similar to Distortion Test Set TS-383/GG except that TS-652/GG uses a synchronous motor and does not include a speed indicator.

Similar to Teletype Corporation Model DXD4/MU-4.

ELECTROMECHANICAL DESCRIPTION:

Power Supply: 115 volts, AC, 60 cycles per second, single-phase, 130 watts.
Operating Speed: 368 operations per minute.

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.		F16-Q-304847-200	
PROCUREM'T INFO.:			
PROCUREM'T COG.: USN		DESIGN COG.: USN, BuShips	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.7	
	- Electronics Test Equipment -		TS-652/GG

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TELETYPEWRITER TEST SET TS-652/GG

MANUFACTURERS' OR CONTRACTORS' DATA:

Teletype Corporation, 1400 West Wrightwood Avenue, Chicago, Illinois; Navy Contract No. NObsr-39217; Approximate Cost per Unit, $650.00.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

NAVSHIPS 900, 155 Vol II.

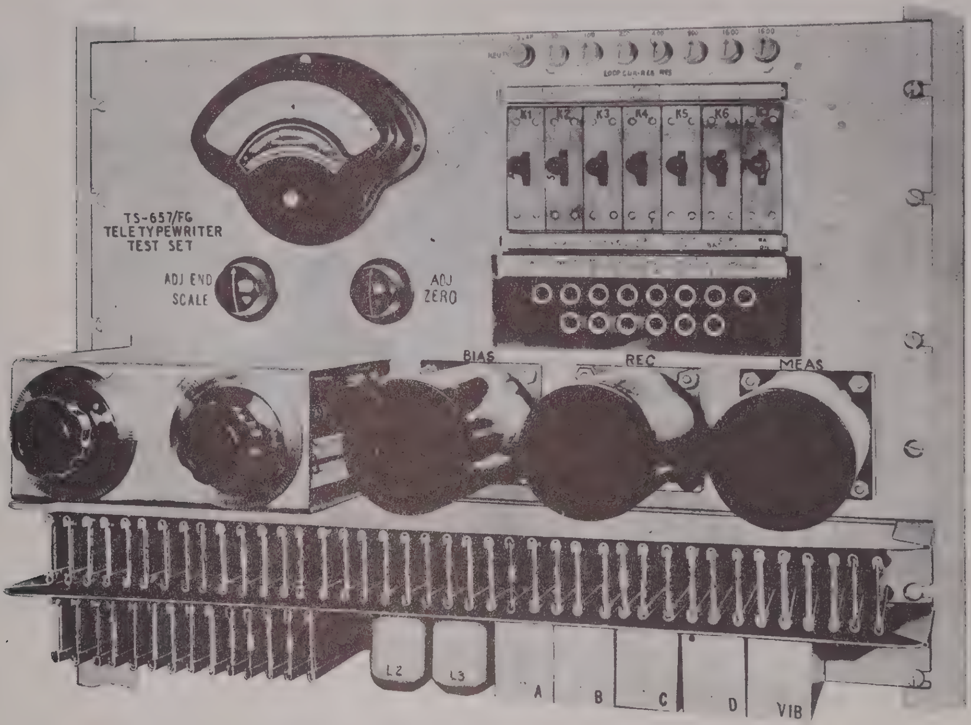
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Teletypewriter Test Set TS-652/GG					156

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Teletypewriter Test Set TS-652/GG	Steel	F16-Q-304847-200	13-1/2	10-1/2	21-1/2	125
	Including:						
1	Motor Unit MU-4			6	9	5-1/2	12
1	Viewing Hood			12 dia.		8	

TELETYPEWRITER TEST SET TS-657/FG



FUNCTIONAL DESCRIPTION:

A portable, general purpose test set that provides a source of biased teletypewriter test signals for use in testing teletypewriter circuits, including particularly regenerative repeaters and teletypewriters. It also provides a means for measuring the bias at the receiving end of a telegraph circuit when reversals are transmitted into the circuit at the sending end. A milliammeter is used in measurements of bias or loop current. It is designed for rack mounting on a standard relay rack.

RELATIONSHIP TO OTHER EQUIPMENT:

Similar to Western Electric Company Model No. 119A.

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The biased test signals are obtained by impressing perfect teletypewriter signals upon a relay circuit whose constants are so adjusted as to make the circuit introduce the desired amount of bias.

Power Supply:

For 0.060 ampere operation: Six positive and two negative 130 volt telegraph battery taps.

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.			
PROCUREM'T INFO.:			
PROCUREM'T COG.: Navy		DESIGN COG.: Navy, BuShips	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.7	

his project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TELETYPEWRITER TEST SET TS-657/FG

ELECTROMECHANICAL DESCRIPTION: (Continued)

For 0.020 ampere operation: Three positive 130 volt telegraph battery taps, as well as three positive and two negative 48 volt telegraph battery taps.

For both conditions, there is also required a 24 volt signal battery tap.

The approximate maximum current drains are given in the following table:

Battery	130 volt operation	48 volt operation
+ 130 volt	0.42 ampere	0.27 ampere
- 130 volt	0.16 ampere	-----------
- 24 volt	0.16 ampere	0.16 ampere
+ 48 volt	-----------	0.05 ampere
- 48 volt	-----------	0.05 ampere

Output Signal: Polar or Neutral.

Type of Bias: Marking, spacing, or switching bias.

Milliammeter Scale: 100-0-100.

Accuracy of Signal Obtained: When the set is arranged to take perfect signals and deliver biased signals, the total distortion introduced by the set other than bias will be less than 1% for any amount of bias, either marking or spacing, up to 60%.

MANUFACTURERS' OR CONTRACTORS' DATA:

Western Electric Company, 120 Broadway, New York 5, New York; BuShips Work Order No. 900-79798.

TUBE COMPLEMENT:

REFERENCE DATA AND LITERATURE:

NAVSHIPS 91210 (Instruction Book).

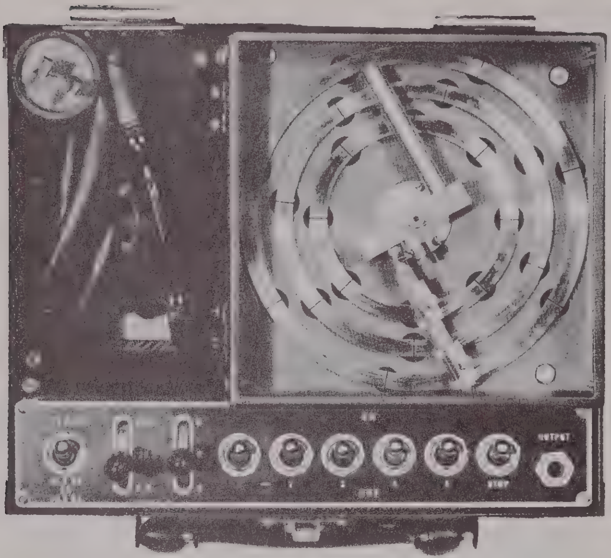
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Teletypewriter Test Set TS-657/FG Consisting of:						
1	Panel	Steel		14	19	3	
1	Panel	Steel		14	19	8-3/4	
						Total:	35

TELETYPEWRITER TEST SET TS-658/UG



FUNCTIONAL DESCRIPTION:

A portable, general purpose, motor driven unit arranged to transmit signals for testing teletype circuits and checking the efficiency of start-stop selectors on teletype apparatus. These signals may be a repetition of teletype signal combinations or telegraph reversals. The transmitted signals may be normal (undistorted), or they may be controlled to have 20% bias or end distortion, either marking or spacing.

RELATIONSHIP TO OTHER EQUIPMENT:

Same as Teletype Corporation, Signal Distortion Test Set, ED-51-DT. Similar to Distortion Test Set TS-659/UG except that the TS-659/UG uses a series governed motor.

ELECTROMECHANICAL DESCRIPTION:

Power Supply: 115 volts, AC, 60 cycles per second, single phase, 1/2 ampere fuse.

Signals:

Telegraph Reversals: 23 cycles per second.

Teletype: 368 operations per minute.

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.		F17-T-350012-529	

PROCUREM'T INFO.:

PROCUREM'T COG.: Navy DESIGN COG.: Navy, BuShips

F.I.I.N.: FUNCTIONAL CLASS. NO.: 10.4.7

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TELETYPEWRITER TEST SET TS-658/UG

ELECTROMECHANICAL DESCRIPTION: (Continued)

Teletype Signals: Undistorted; marking bias distortion; spacing bias distortion; marking end distortion; spacing end distortion.

Distortion, Marking or Spacing:

End: 20% Bias: 20%

Motor: Synchronous.

MANUFACTURERS' OR CONTRACTORS' DATA:

Teletype Corporation, Chicago, Illinois.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

NavShips 91162 (Instruction Book).

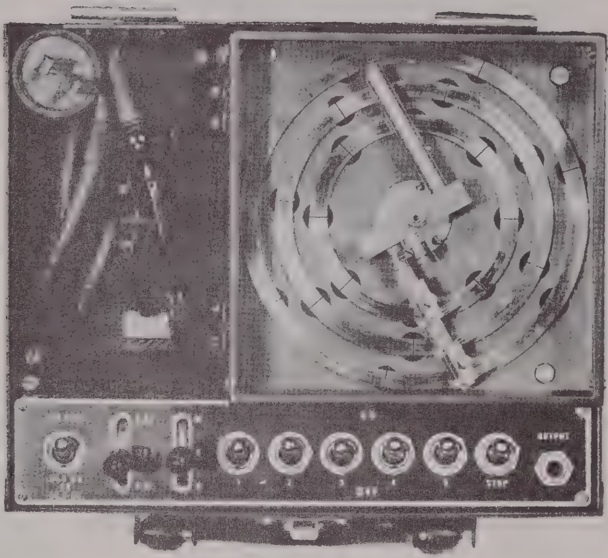
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Teletypewriter Test Set TS-658/UG	Metal	F17-T-350012-529	5	7	8-3/4	12

TELETYPEWRITER TEST SET TS-659/UG



FUNCTIONAL DESCRIPTION:

A portable, general purpose, motor driven unit arranged to transmit signals for testing teletype circuits and checking the efficiency of start-stop selectors on teletype apparatus. These signals may be a repetition of teletype signal combinations or telegraph reversals. The transmitted signals may be normal (undistorted), or they may be controlled to have 20% bias or end distortion, either marking or spacing.

RELATIONSHIP TO OTHER EQUIPMENT:

Same as Teletype Corporation, Signal Distortion Test Set, ED-58-HE. Similar to Distortion Test Set TS-658/UG except that the TS-658/UG uses a synchronous motor.

ELECTROMECHANICAL DESCRIPTION:

Power Supply: 115 volts, AC, 25 to 65 cycles per second, single phase, 1/2 ampere fuse.

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.		F17-T-34291-1005	
PROCUREM'T INFO.:			
PROCUREM'T COG.: Navy		DESIGN COG.: Navy, BuShips	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.7	
	- Electronics Test Equipment -		TS-659/UG

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TELETYPEWRITER TEST SET TS-659/UG

ELECTROMECHANICAL DESCRIPTION: (Continued)

Signals:
Telegraph Reversals: 23 cycles per second.
Teletype: 368 operations per minute.
Teletype Signals: Undistorted; marking bias distortion; spacing bias distortion; marking end distortion; spacing end distortion.

Distortion, Marking or Spacing:
End: 20% Bias: 20%

Motor: Series Governed type.

MANUFACTURERS' OR CONTRACTORS' DATA:

Teletype Corporation, Chicago, Illinois; Navy Contract No. NObsr-42388.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

NAVSHIPS 91162 (Instruction Book).

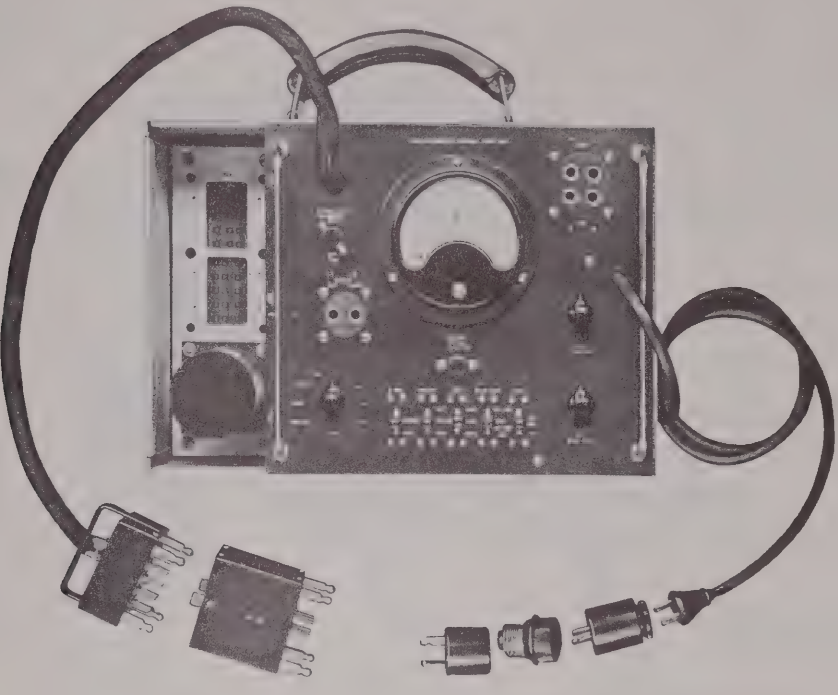
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Teletypewriter Test Set TS-659/UG	Metal	F17-T-34291-1005	5	7	8-3/4	12

TELETYPEWRITER TEST SET TS-660/UG



FUNCTIONAL DESCRIPTION:

A portable, general purpose, box type test set primarily designed for clearing transmission troubles at outlying telegraph subscriber stations. It may also be used in central offices for testing toll telegraph circuits and circuits extending to outlying points when more suitable measuring equipment is not available. This set is designed for use with selected signals and therefore must be used on circuits that are not in service. The set provides for the checking of operating currents and the measurement of systematic distortion and relay bias, interference, and the distorting effect of the interference. It can also be used in the line or local circuits of a telegraph repeater as an ammeter or voltmeter. The meter has three scales (switch selected) indicating voltage, current, and per cent distortion.

RELATIONSHIP TO OTHER EQUIPMENT:

Similar to Western Electric Model 161A1.

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.		F17-T-34291-1001	
PROCUREM'T INFO.:			
PROCUREM'T COG.: Navy		DESIGN COG.: Navy, BuShips	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.7	
22 December 1954	- Electronics Test Equipment -		TS-660/UG

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TELETYPEWRITER TEST SET TS-660/UG

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The circuits of this test set may be divided into interrelated parts as follows: input circuit, send-receive feature, power supply, bias current supply, systematic distortion measuring circuit, bias measuring circuit, meter switching circuit, and interference measuring circuit.

Power Supply: 115 ±10 volts, AC or DC.

Meter Scale: 140 to 0 to 140. When reading values less than 35, a meter scale button is depressed to make the scale 35 to 0 to 35 for distortion, voltage, or current.

MANUFACTURERS' OR CONTRACTORS' DATA:

Western Electric Company, Inc., 120 Broadway, New York 5, New York; Navy Contract No. NObsr-42420.

TUBE COMPLEMENT:

1 Raytheon 25Z6.

REFERENCE DATA AND LITERATURE:

NAVSHIPS 91162 (Instruction Book).

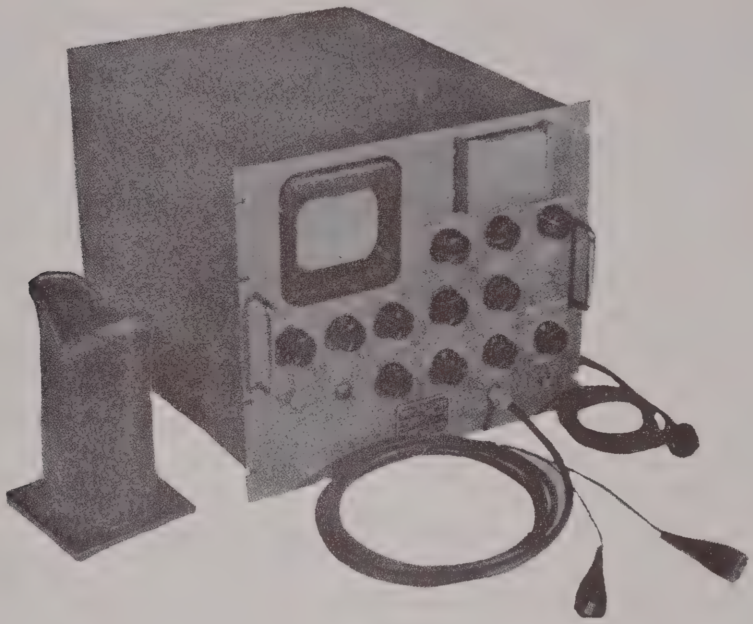
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Teletypewriter Test Set TS-660/UG	Aluminum	F17-T-34291-1001	9	14	9	28
1	Power Cord						
1	Polar Relay No. 215A						
	Power Plug Adapters						

TRANSMISSION LINE FAULT LOCATOR TS-676/U



FUNCTIONAL DESCRIPTION:

A portable general purpose test instrument designed for locating faults in transmission lines. It is capable of locating open circuits, short circuits, and partial short circuits occuring in cables up to 100,000 feet in length. When this instrument is connected to a cable, an operator can see the electrical characteristics of the cable displayed on a cathode ray tube. It is then possible to determine at which point a fault exists and convert this to an accurate distance in feet. All controls are located on the front panel of the test instrument. They include the focusing and positioning controls, the trace expander, attenuator for the pulse output, reflection gain control, output impedance matching control, and the coarse and fine frequency adjusting controls of the range marker circuit. In addition, there is the power on-off switch, the range selector, and the range marker switch.

RELATIONSHIP TO OTHER EQUIPMENT:

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.		F16-F022001-1001	
PROCUREM'T INFO.:			
PROCUREM'T COG.: USN		DESIGN COG.: USN, BuShips	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.7	
- Electronics Test Equipment -			TS-676/U

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TRANSMISSION LINE FAULT LOCATOR TS-676/U

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: Circuits include a pulse generating circuit, a high gain reflection amplifier, a sweep circuit, a range marker circuit, a cathode ray tube and its associated circuits, and all necessary power supplies. The instrument operates on radar principles in that a short duration voltage pulse is generated and applied directly to the cable under test. Any discontinuity in the cable represents a change in the characteristic impedance and sends reflections back to the test instrument where they appear on the cathode ray tube. Coincident with the transmitted pulse, a trace is started across the cathode ray tube at a constant and predetermined rate. Range markers, applied to the trace at calibrated time intervals, provide a means of accurately determining the transit time of the pulse. This transit time is a measure of the distance to the discontinuity (fault). A range in feet is made by comparing the position of the reflection on the trace to the range markers.

Power Supply: 104 to 126 volts, AC, 50 to 1600 cycles per second, single-phase, 0.9 power factor at 2.65 amperes.

Peak Power Output: 5000 watts.

Pulse Rate: 500 pulses per second on 100,000 foot range.
5000 pulses per second on 5,000 foot range.

Output Impedance: 50 to 550 ohms (adjustable).

Heat Dissipation: 275 watts.

MANUFACTURERS' OR CONTRACTORS' DATA:

Tobe Deutschmann Corporation, Norwood, Massachusetts; Contract No. NObsr 43068, dated 2 November 1948.

TUBE COMPLEMENT:

2 JAN-2X2-A, 1 JAN-3C45, 1 JAN-5JP1-A, 2 JAN-5U4-G, 3 JAN-6AG5, 9 JAN-6AQ5, 6 JAN-6J6, 3 JAN-6SN7-GT, 2 JAN-6X4, 1 JAN-OA2, 1 JAN-OB2.

REFERENCE DATA AND LITERATURE:

Instruction Book for Transmission Line Fault Locator TS-676/U
NAVSHIPS 91352

SHIPPING DATA:

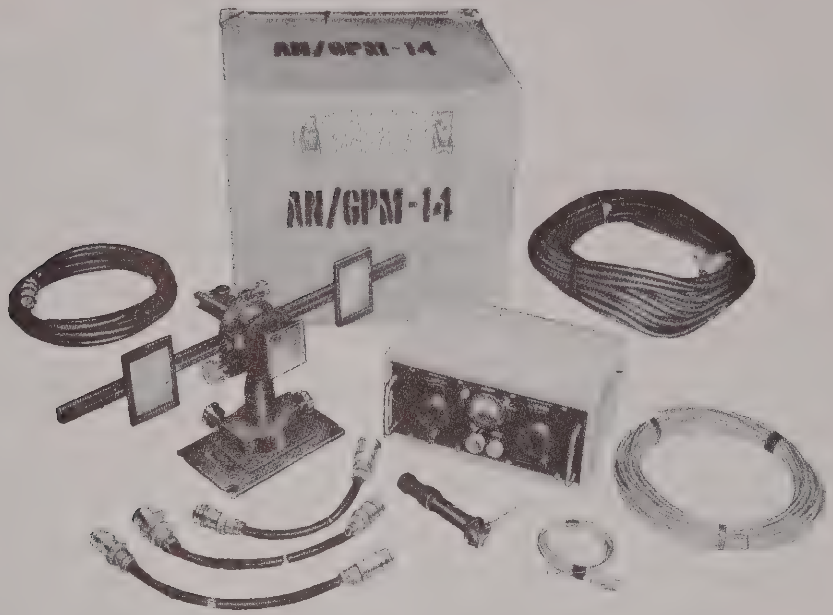
No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Transmission Line Fault Locator TS-676/U	9.9	21-1/4	24-3/4	32-3/4	165
1	Spare Parts Box	0.5	6-1/8	10-1/2	13-1/2	35

TRANSMISSION LINE FAULT LOCATOR TS-676/U

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Transmission Line Fault Locator TS-676/U	Metal	F16-F022001-1001	15-5/8	19	22-1/2	75
1	Cathode Ray Tube Hood						7/8
1	Input Cable						3/4
2	Output Cable						2
2	Output Adapter						2
1	Spare Parts Box			6-1/8	10-1/2	13-1/2	35

BORESIGHTING SET AN/GPM-14
(TEST SET, ANTENNA AN/GPM-14)



FUNCTIONAL DESCRIPTION:

A portable, general purpose boresighting set used in aligning the optical axis to the electrical axis in all present day airborne gunlaying radar sets. Indication is both visual in a gun boresighting telescope on the screen of an oscilloscope, and electrical on a milliammeter. This set is used in organizational, field, and depot testing.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: A portion of the radiated energy from the aircraft antenna is picked up by the horn antenna, where it is detected by a crystal. Video pulses from the crystal are then fed through the microammeter to the vertical input of the oscilloscope. The horizontal input to the oscilloscope is from the radar antenna spin generator. The energy received by the horn antenna is modulated in a manner dependent upon the location of the horn antenna axis with respect to the radiation axis of the radar antenna. The aircraft radar antenna is positioned in azimuth and elevation by means of two synchro generators in the control

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.	Alternate Standard		
STOCK NOS.	7CAC-130000		

PROCUREM'T INFO.: USAF Exhibit WCBG-P311 dated 16 June 1951
PROCUREM'T COG.: USAF DESIGN COG.: USAF, WADC, Arm.
F.I.I.N.: FUNCTIONAL CLASS. NO.: 10.4.8

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Betheada, Md. - Multilithed in U. S. A.

BORESIGHTING SET AN/GPM-14
(TEST SET, ANTENNA AN/GPM-14)

ELECTROMECHANICAL DESCRIPTION: (Continued)

indicator assembly. When the modulation, as observed on the oscilloscope screen, is zero, the horn antenna axis is lying directly on the center line of the radar antenna scan cone. If the vertical cross hair of the target mirror on the horn antenna arm is displaced from the horn antenna axis a distance equal to the displacement of the boresighting telescope from the radar radiation axis, and if the modulation is zero, the relative parallelism between the radar and boresight axes can be determined by observation of the target mirror through the telescope.

Power Supply: None. (Power for the synchros is supplied directly from the radar set being tested.)

Frequency Range: 5200 to 11,000 megacycles per second, unless a different horn antenna assembly is used.

Signal Input Power: 2 to 250 kilowatts, peak.

Meter Range: 0 to 25 microamperes.

Attenuation in Horn Antenna: 5 to 60 decibels.

Crystal Current: 10 microamperes, maximum.

Telescope: 5-power, elbow type; contains a reticle consisting of two concentric circles 2 and 10 mils in diameter, crossed by hair lines.

Accuracy: ±0.5 mil of indicated alignment.

MANUFACTURERS' OR CONTRACTORS' DATA:

Ultrasonic Corporation, 61 Rogers Street, Cambridge 42, Massachusetts; USAF Contract No. AF 33(600)9382, dated March 1952; Approximate Cost per Unit, $1500.00.

TUBE COMPLEMENT.

1 JAN-IN23B (crystal detector).

REFERENCE DATA AND LITERATURE:

TO 33D5-8-2-1 (Operation Instructions).
TO 33D5-8-2-2 (Service Instructions).
TO 33D5-8-2-3 (Overhaul Instructions).
TO 33D5-8-2-4 (Illustrated Parts Breakdown).

SHIPPING DATA:

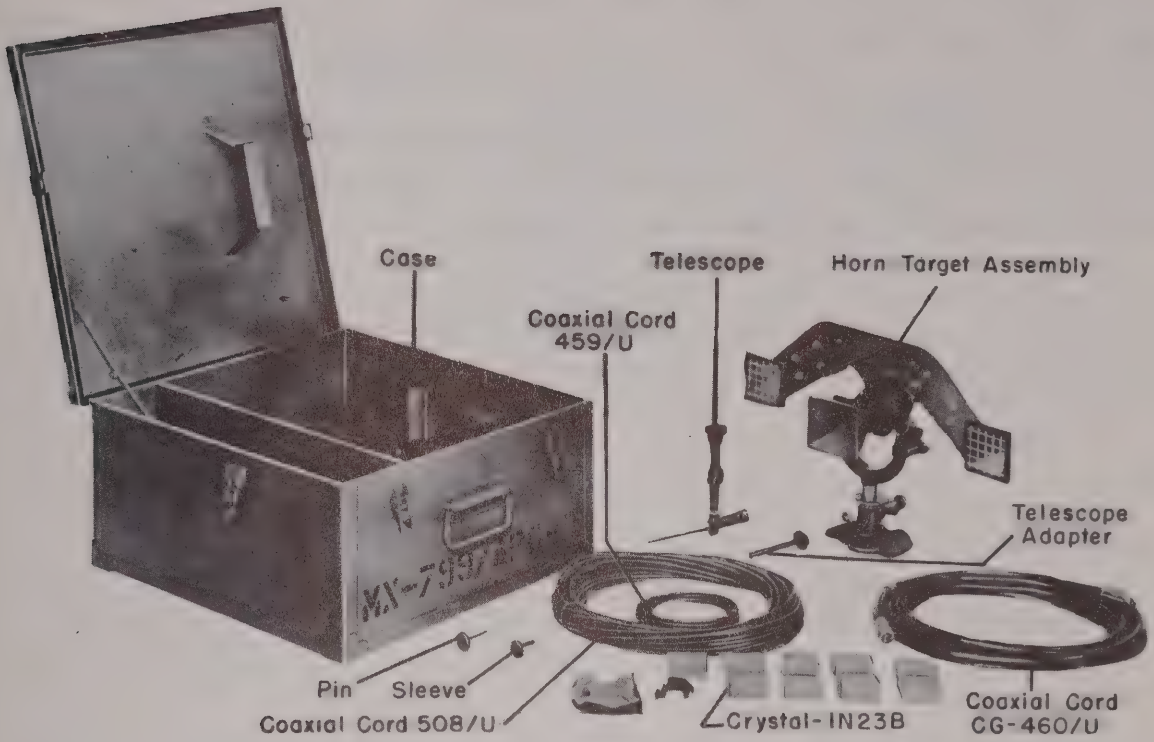
No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Over-all Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

BORESIGHTING SET AN/GPM-14
(TEST SET, ANTENNA AN/GPM-14)

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Over-all Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Boresighting Set AN/GPM-14		7CAC-130000				
	Including:						
1	Horn Antenna Assembly AS-592/GPM-14			11-3/4	33-1/2	10-1/8	13.25
1	Control Indicator Assembly C-987/GPM-14			7	14-7/8	8-3/4	10.75
1	Gun Boresighting Telescope Assembly						
1	Test Set Case Assembly CY-1099/U			20	16	20	30
1	Test Set Adapter Cable No. 1						
1	Test Set Adapter Cable No. 2						
1	Test Set Adapter Cable No. 3						
1	Test Set Adapter Cable No. 4						
1	Cable Assembly CX-1933/U			240 long			
1	Test Set Oscilloscope Lead			72 long			
1	RF Cable Assembly CG-546/U			1200 long			

BORE SIGHTING ACCESSORY KIT MX-799/APG-3


Case
Telescope
Horn Target Assembly
Coaxial Cord 459/U
Telescope Adapter
Pin
Sleeve
Coaxial Cord 508/U
Crystal-IN23B
Coaxial Cord CG-460/U

FUNCTIONAL DESCRIPTION:

A portable kit used to detect errors in alignment of radar electrical axis with respect to the telescope line of sight which is mounted in a radar set. The kit and its associated equipment are used to determine the bearing of the radar electrical axis so that this axis and the gun axis can be harmonized.

RELATIONSHIP TO OTHER EQUIPMENT:

Used to test Radar Sets AN/APG-3, 33.

ELECTROMECHANICAL DESCRIPTION:

To obtain the deviation in mils between the telescope line of sight and the radar electrical axis, the latter is set on a fixed-bearing and the deviation of the former from its proper position is noted. Reference is established by paralleling the two axes and placing the geometric center of the horn target and the horizontal

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-000350		2Z5731-799

PROCUREM'T INFO.: USAF Spec. No. R-7142

PROCUREM'T COG.: USAF　　DESIGN COG.: USAF, Arm

F.I.I.N.:　　FUNCTIONAL CLASS. NO.: 10.4.8

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

BORE SIGHTING ACCESSORY KIT MX-799/APG-3

ELECTROMECHANICAL DESCRIPTION: (Continued)

center line of the mirrors at the same elevation.

Therefore, with the radar electrical axis set at the geometric center of the horn target, the deviation can be determined by reading the deviation of the telescope line of sight from the center of the mirror.

The radar electrical axis can be set at the geometric center of the horn target by indication of zero modulation of the detector loop output as determined by the oscilloscope and frequency meter combination.

MANUFACTURERS' OR CONTRACTORS' DATA:

General Electric Company, Electronics Park, Syracuse, New York; Contract No. AF 33(038)ac-14739; Approximate Cost per Unit, $ 1222.00.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 16-35MX799-4 (Parts Catalog).
TO 16-35MX799-5 (Maintenance Instructions).

SHIPPING DATA:

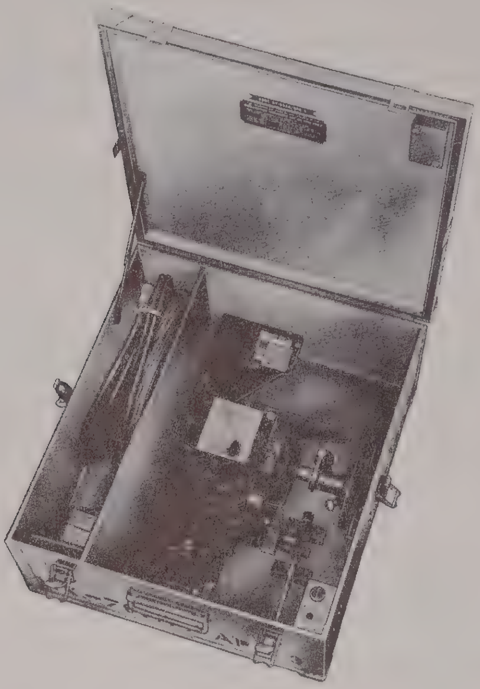
No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Over-all Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Bore Sighting Accessory Kit MX-799/APG-3 (Water Resistant Carton)	15.88	30.5	30.5	25.5	75

BORE SIGHTING ACCESSORY KIT MX-799/APG-3

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Over-all Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Bore Sighting Accessory Kit MX-799/APG-3 Including:		7CAC-000350 2Z5731-799				
1	Horn Target Assembly AS-373/APG-3		7CAC-413065 2A264-373	13	19	8-3/4	6.0
1	Telescope Eyepiece 8007-SP-0369			5	1		0.4
1	Muzzle Sight 8007-SP-0371			8	1		0.4
1	0.50 Caliber Adapter 8007-SP-5104			4	3/4		0.25
1	Cord CG-460/U			300 long			3.0
1	Cord CG-459/U			120 long			1.2
1	Cord CG-508/U			1200 long			12.0
1	Sleeve						0.25
10	Crystals JAN-1N23B						
1	Pin			2	1		0.25
1	Transit Case CY-592/APG-3		7CAC-175390 2Z1891-592	20	21	10-1/2	17.0

BORE SIGHTING ACCESSORY KIT MX-799A/APG-3



FUNCTIONAL DESCRIPTION:

A portable kit used to detect errors in alignment of radar electrical axis with respect to the telescope line of sight which is mounted in Radar Sets AN/APG-3, AN/APG-32, or AN/APG-41. The kit and its associated equipment are used to determine the bearing of the radar electrical axis so that this axis and the gun axis can be harmonized.

RELATIONSHIP TO OTHER EQUIPMENT:

This equipment is similar to MX-799/APG-3 except that the arms supporting the mirrors are extendable in the "A" model.

ELECTROMECHANICAL DESCRIPTION:

To obtain the deviation in mils between the telescope line of sight and the radar electrical axis, the latter is set on a fixed-bearing and the deviation of the former

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-000355		
PROCUREM'T INFO.: Spec. No. R-7142 and amend. thereto. GE Part No. 139D175G1			
PROCUREM'T COG.: USAF		DESIGN COG.: USAF, Arm.	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.8	
	- Electronics Test Equipment -		MX-799A/APG-3

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

BORE SIGHTING ACCESSORY KIT MX-799A/APG-3

ELECTROMECHANICAL DESCRIPTION: (Continued)
from its proper position is noted. Reference is established by paralleling the two axes and placing the geometric center of the horn target and the horizontal center line of the mirrors at the same elevation.

Therefore, with the radar electrical axis set at the geometric center of the horn target, the deviation can be determined by reading the deviation of the telescope line of sight from the center of the mirror.

The radar electrical axis can be set at the geometric center of the horn target by indication of zero modulation of the detector loop output as determined by the oscilloscope and frequency meter combinations.

MANUFACTURERS' OR CONTRACTORS' DATA:

General Electric Company, Electronics Park, Syracuse, New York; Contract No. AF 33(038)14739, 7 July 1948; Approximate Cost per Unit, $1222.00.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 16-35MX799-4 (Parts Catalog).
TO 16-35MX799-5 (Maintenance Instructions).

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Over-all Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Bore Sighting Accessory Kit MX-799A/APG-3 (Water Resistant Carton)	15.88	30.5	30.5	25.5	75

BORE SIGHTING ACCESSORY KIT MX-799A/APG-3

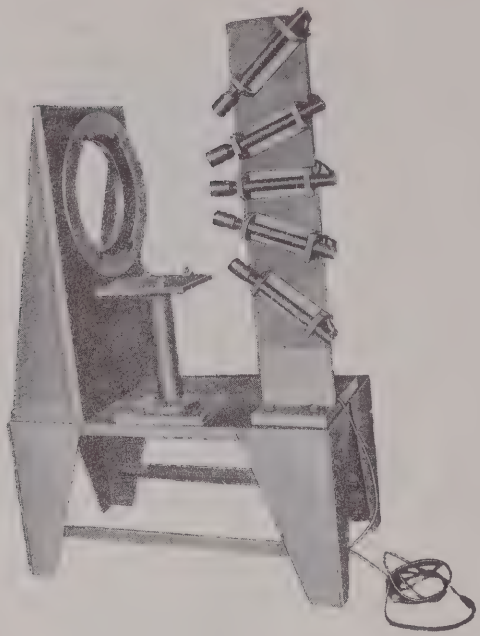
EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Over-all Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Bore Sighting Accessory Kit MX-799A/APG-3 Including:		7CAC-000355	30-1/2	30-1/2	25-1/2	75.0
1	Horn Target Assembly AS-373A/APG-3			13	19	8-3/4	0.25
1	Telescope Eyepiece 8007-SP-0369			5	1		0.4
1	Telescope Muzzle Sight 8007-SP-0371			8	1		0.4
1	0.50 Caliber Adapter 8007-SP-5104			4	3/4		0.25
1	Cord CG-460/U			300 long			3.0
1	Cord CG-459/U			120 long			1.2
1	Cord CG-508/U			1200 long			12.0
1	Sleeve						0.25
10	Crystals JAN-1N23B						
1	Pin						0.25
1	Transit Case CY-592A/APG-3			19	21	10	17.0

STAND ASSEMBLY, COLLIMATING

Part No. 142D557G-1

(General Electric Company)



FUNCTIONAL DESCRIPTION:

A special purpose test stand which is used to check the antennas of the AN/APG-3, 32, 41, and 41A & B Radar Systems, and the MD-1 Fire Control System. The stand provides a means for determining whether or not the antenna azimuth axis and the boresight telescope jig azimuth axis are perpendicular to the antenna elevation axis.

RELATIONSHIP TO OTHER EQUIPMENT:

MECHANICAL DESCRIPTION:

Physical Characteristics: The stand consists of a four-legged steel base upon which are mounted a transit stand and antenna and collimator brackets. An adapter plate holds the unit under test to the antenna bracket during testing. Mounted on the collimator bracket are five collimators which emit parallel rays of light. A spirit level for the antenna is also included with the stand. A transit is clamped to the transit stand, and the transit and the antenna under test are leveled. The five collimators are aligned with the reference to the transit telescope. A bore-

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAD-729260		
PROCUREM'T INFO.:			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.8	
	- Electronics Test Equipment -		G.E. 142D557G-1

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U.S.A.

STAND ASSEMBLY, COLLIMATING
Part No. 142D557G-1
(General Electric Company)

MECHANICAL DESCRIPTION: (Continued)
sight telescope is then mounted on the antenna and aligned with each of the five collimators to provide a means of checking the alignment of the antenna azimuth and elevation axes.

Power Supply: 115 volts, AC, 6 watts for each of five collimators, or a total of 30 watts.

Accuracy: ±10 minutes, maximum error detection.

MANUFACTURERS' OR CONTRACTORS' DATA:
General Electric Company, 1 River Road, Schenectady, New York.

REFERENCE DATA AND LITERATURE:
TO 33D2-6-48-1 (Operation and Service Instructions).

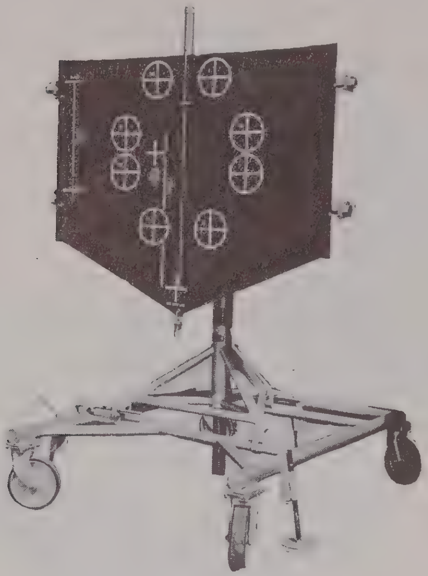
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Stand Assembly, Collimating (General Electric 142D557G-1)	Metal	7CAD-729260	72	48	24	

TARGET HARMONIZATION AND BORESIGHT
Part No. 453352-6
(Lockheed Aircraft Corporation)



FUNCTIONAL DESCRIPTION:

A special purpose, mobile target and stand designed for use in determining errors in alignment of boresight and telescopic lines of sight of radar antennas and gun cameras on F94 A, B, and C aircraft. The stand is rolled into position, raised off of the casters, and accurately positioned by lateral and vertical adjustments.

RELATIONSHIP TO OTHER EQUIPMENT:

MECHANICAL DESCRIPTION:

Physical Characteristics: The equipment includes a fibre glass target mounted on a tubular steel mast. The mast is supported by a rectangular steel frame mounted on four casters. Provision is made for lateral and vertical adjustment of the target.

MANUFACTURERS' OR CONTRACTORS' DATA:

Lockheed Aircraft Corporation, Burbank, California.

REFERENCE DATA AND LITERATURE:

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-800625-5		
PROCUREM'T INFO.:			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.9	
	- Electronics Test Equipment -		Lockheed 453352-6

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U.S.A

TARGET HARMONIZATION AND BORESIGHT
Part No. 453352-6
(Lockheed Aircraft Corporation)

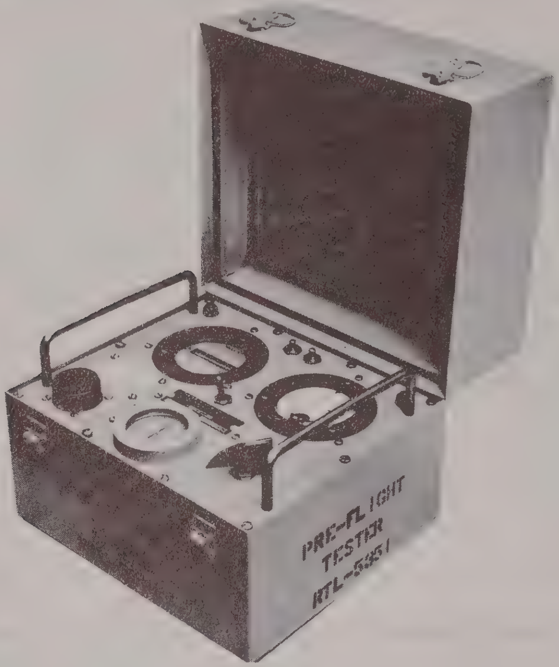
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Target Harmonization and Boresight (Lockheed 453352-6)		7CAC-800625-5				
	Including:						
1	Stand (Lockheed 456251)	Steel					
1	Frame (Lockheed 456032)	Steel					
1	Target (H. I. Thompson 12-21207)	Fibre glass		60	74		

TESTER, PREFLIGHT
AC SPARK PLUG
(Division of General Motors Corporation)
Part No. RTL-5351



FUNCTIONAL DESCRIPTION:

The RTL-5351 Tester, Preflight, is a portable test instrument designed to check electrical characteristics relative to the qualitative performance of the A series gun-bomb-rocket sight systems. All components are mounted on an aluminum panel housed in a dust and water proof aluminum carrying case. The cover contains the connecting cables.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The circuit consists of a frequency meter, a DC microammeter with associated shunts and multipliers, a thermometer calibrated in degrees centigrade, and a rotary selector switch for connection to the desired system circuits.

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-809639		
PROCUREM'T INFO.:			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.10	
	- Electronics Test Equipment -AC Spark Plug RTL-5351		

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TESTER, PREFLIGHT
AC SPARK PLUG
(Division of General Motors Corporation)
Part No. RTL-5351

ELECTROMECHANICAL DESCRIPTION: (Continued)
Power Supply: None.
Frequency Range: 380 to 420 cycles per second.
Accuracy: ±3% full scale on DC measurements.
±4% full scale on AC measurements.
±2 cycles per second (using the temperature correction chart) on frequency.

MANUFACTURERS' OR CONTRACTORS' DATA:

AC Spark Plug Division of General Motors Corporation, Milwaukee 2, Wisconsin; Contract No. AF 33(600)-24095, 3 March 1955.

TUBE COMPLEMENT:

1 JAN-IN42.

REFERENCE DATA AND LITERATURE:

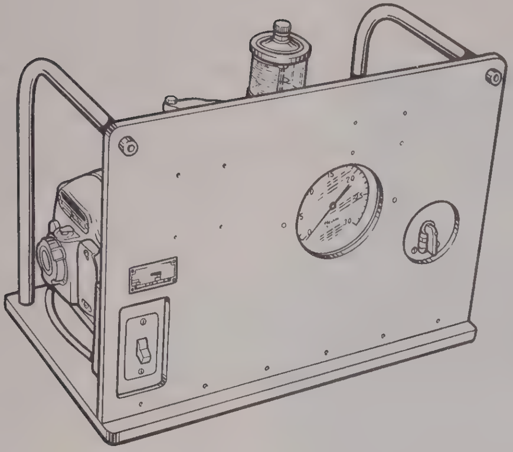
SHIPPING DATA:

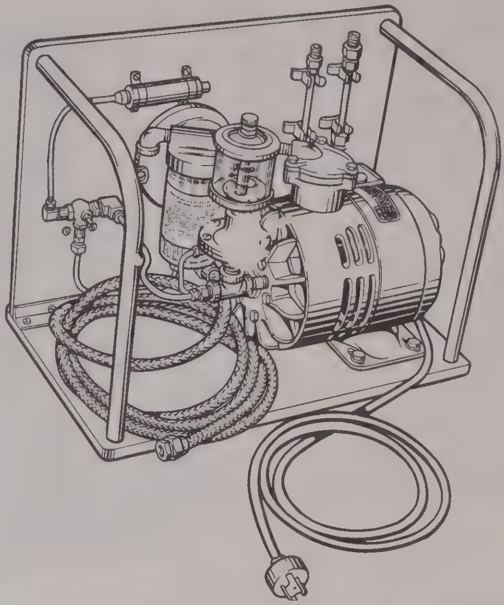
No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Tester, Preflight (AC Spark Plug RTL-5351)	0.63	10	10-3/4	10-1/4	24

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	

GAGE AND ADAPTER, PRESSURE TEST
TSY-7030
(General Mills, Inc.)





FUNCTIONAL DESCRIPTION:

The gage and adapter is a test fixture which is used to check the type Y-2 and Y-4 Horizontal Periscopic Bombsight for leads under vacuum. A three-way air valve on the test unit switches the vacuum connection between the periscope and the pump from a closed position to an open atmosphere position. A vacuum gage indicates a reduction in pressure from atmosphere.

RELATIONSHIP TO OTHER EQUIPMENT:

MECHANICAL DESCRIPTION:

Physical Characteristics: The gage and adapter consists of a base upon which are mounted a 1/4 horsepower electric motor and a pump combination. All accessories, such as a filter, automatic lubricator, muffler and oil trap assembly, and flexible connecting tube are attached to the motor-pump assembly. All other operating controls and adapters are mounted on the vertical front panel of the unit. Adapters are used to attach the flexible tube to the unit to be tested and a three-way air valve located on the front panel provides a means of conducting the

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAD-335885		
PROCUREM'T INFO.:			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.10	
	- Electronics Test Equipment -General Mills TSY-7030		

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U.S.A.

GAGE AND ADAPTER, PRESSURE TEST
TSY-7030
(General Mills, Inc.)

MECHANICAL DESCRIPTION: (Continued)

check for leakage by alternately switching from a closed position to an open-atmosphere position. A vacuum gage located on the front panel indicates the operational suitability of the unit under test.

Power Supply: 115 volts, AC, 60 cycles per second, split phase.

Vacuum Gage Range: 0 to 30 inches of mercury.

Pump Speed: 1750 revolutions per minute.

MANUFACTURERS' OR CONTRACTORS' DATA:

General Mills, Inc., Mechanical Division, 400 Second Avenue, South Minneapolis, Minnesota; Contract No. AF 33(038)14786, July 1950; Approximate Cost per Unit, $470.00.

REFERENCE DATA AND LITERATURE:

TO 33D5-9-16-1 (Operation, Service, and Overhaul Instructions).

TO 33D5-9-16-4 (Parts Breakdown).

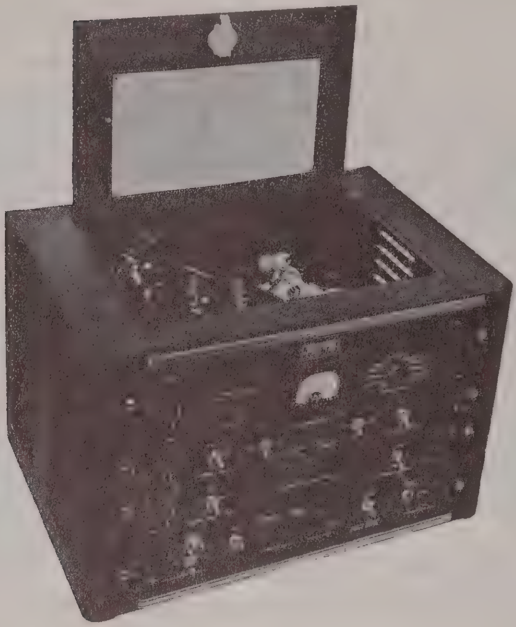
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Gage and Adapter, Pressure Test (General Mills TSY-7030)	4.34	20	25	15	80

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Gage and Adapter, Pressure Test (General Mills TSY-7030)	Metal	7CAD-335885	13-1/2	18-1/2	11	65

SYSTEM ANALYZER
Part No. T-100881
(Sperry Gyroscope Company)



FUNCTIONAL DESCRIPTION:

A portable test equipment designed to permit manual control of various switching operations that are necessary in checking certain components of the A-1 Gun Sight and the MA-2 Fire Control Systems. The analyzer is basically an interconnecting component which serves to monitor the system being tested.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: Provision is made for opening the computer stiffness and sight head torque motor circuits, controlling the displacement of the target index, and checking the motor current. In addition, the torque motor voltages, the excitation currents, and the pick off output voltages may be obtained at appropriate meter jacks with either an oscilloscope or vacuum tube voltmeter.

Power Supply: 28 volts, AC, three-phase, 400 cycles per second.
28 volts, DC.
300 volts, DC.

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-041250		
PROCUREM'T INFO.:			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.10	
	- Electronics Test Equipment - Sperry Part No. T-100881		

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

SYSTEM ANALYZER
Part No. T-100881
(Sperry Gyroscope Company)

ELECTROMECHANICAL DESCRIPTION: (Continued)

The analyzer requires no power for its own operation, but it does distribute three-phase, 28 volts, 400 cycles per second, AC, 28 volts DC, and 300 volts DC for testing the various components.

"Stiffness Motor Current" Milliammeter:

Meter Range: 0 to 100 milliamperes.

Accuracy: ±1% at 25°C. (77° F.).

MANUFACTURERS' OR CONTRACTORS' DATA:

Sperry Gyroscope Company, Division of the Sperry Corporation, Great Neck, Long Island, New York.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 33D5-12-12-1 (Operation and Service Instructions).

TO 33D5-12-12-4 (Parts Catalog).

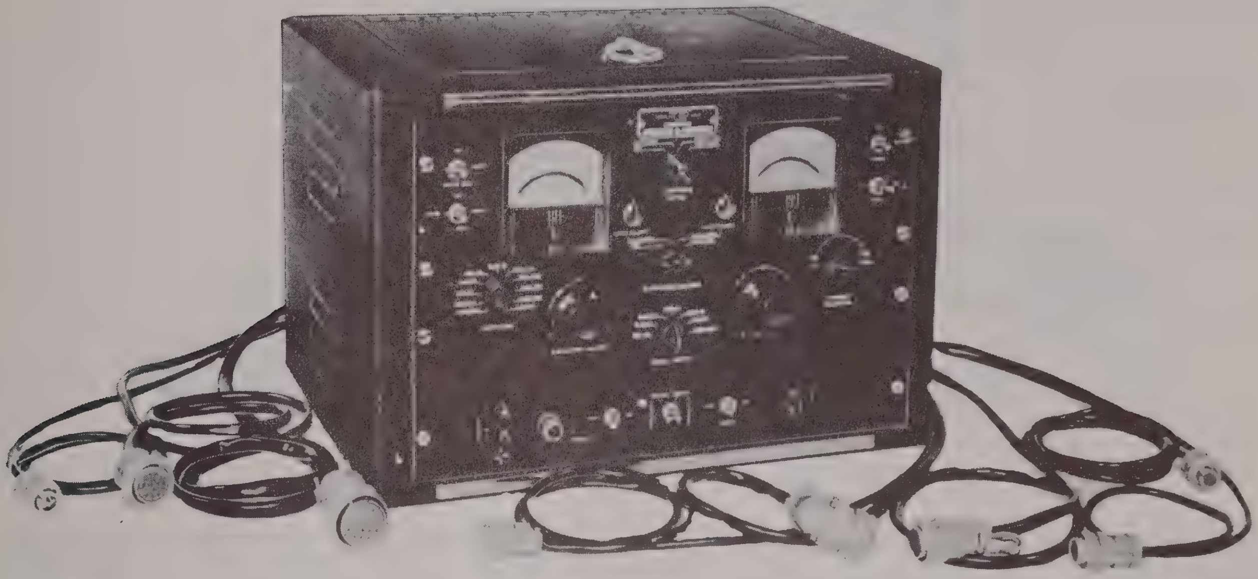
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Analyzer System Sperry Part No. T-100881		7CAC-041250	14-3/4	22-3/4	16	52
1	Cable Assembly T-100881-600						
1	Cable Assembly T-100881-601						
Sperry Part No. T-100881 - Electronics Test Equipment -							

COMPUTER ANALYZER
Part No. T-100884
(Sperry Gyroscope Company)



FUNCTIONAL DESCRIPTION:

A portable test instrument which is used to check the various components of the A-1C(M) Gyro Computing Sight (Gun-Bomb-Rocket). The analyzer provides a means for checking the stiffness motor currents, torque motor voltages, excitation currents, and pickoff output voltages. Measurement of voltages and currents are made on meters either externally connected to or incorporated in the analyzer.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: Circuits consist of a variable transformer, potentiometers, selector switches, and meters. The analyzer is connected to the unit under test by means of cables and receptacles. Switches and potentiometers on the front panel of the analyzer permit the selection of various individual circuits for measurement and testing. The operational quality of the unit under test is indicated

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-038367		
PROCUREM'T INFO.:			
PROCUREM'T COG.:		DESIGN COG.:	Commercial
F.I.I.N.:		FUNCTIONAL CLASS. NO.:	10.4.10
	- Electronics Test Equipment -Sperry Pt. No. T-100884		

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

COMPUTER ANALYZER
Part No. T-100884
(Sperry Gyroscope Company)

ELECTROMECHANICAL DESCRIPTION: (Continued)

by means of the meters which are located on the front panel of the analyzer.

Power Supply: 28 volts, AC, 400 cycles per second, three-phase.
300 volts, DC.

Current Measuring Range: 0 to 300 milliamperes, AC.
0 to 50, 100 milliamperes, DC.

MANUFACTURERS' OR CONTRACTORS' DATA:

Sperry Gyroscope Company, Great Neck, Long Island, New York.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 33D5-5-6-1 (Operation and Service Instructions).
TO 33D5-5-6-4 (Parts Catalog).

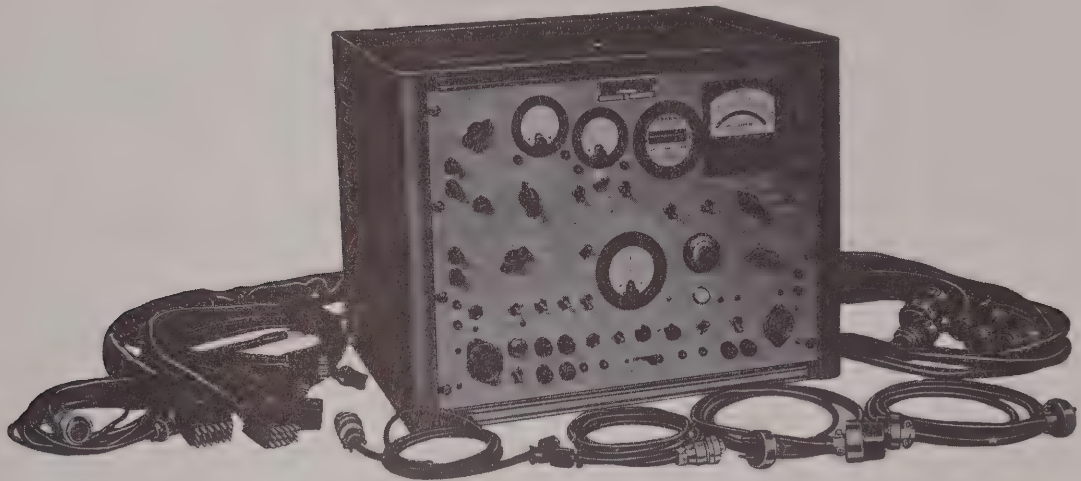
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Computer Analyzer (Sperry Part No. T-100884)	Metal	7CAC-038367	14-3/4	23-3/4	16	45

ANALYZER, SYSTEM
Part No. 1, 000, 041
(Sperry Gyroscope Company)



FUNCTIONAL DESCRIPTION:

This equipment is designed to test the A-7 Gyro Computing Sight (Gun-Bomb-Rocket). The analyzer is used in checking the current and voltage, under dynamic conditions, across the windings in the computer and sight head of the system, and in measuring output voltages.

Specifically, this equipment performs the following functions: it provides the means of opening the stiffness motor circuits in the computer and the torque motor circuits in the sight head; it checks the stiffness motor currents, torque motor voltages, excitation currents, and the pickoff output voltages; it also controls the target index (center dot) in the sight head.

These functions are accomplished by the setting of the switches on the panel of the analyzer. Voltages, currents, and outputs are measured by meters on the panel, by externally connected meters, or by an incorporated calibrated bridge circuit.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: A reference voltage circuit is incorporated in the analyzer circuit. This makes available an accurate reference of one volt ± one-tenth percent for calibration of the bridge circuit of the analyzer. The bridge circuit provides an accurate means of measuring small currents.

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-041250		

PROCUREM'T INFO.:

PROCUREM'T COG.: DESIGN COG.: Commercial

F.I.I.N.: FUNCTIONAL CLASS. NO.: 10. 4. 10

- Electronics Test Equipment - Sperry No. 1,000,041

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U.S.A

ANALYZER, SYSTEM
Part No. 1, 000, 041
(Sperry Gyroscope Company)

ELECTROMECHANICAL DESCRIPTION: (Continued)

A vibrating reed frequency meter monitors the frequency of the 28-volt, 400-cycle, 3-phase power supply which comes from the system under test.

A voltameter measures high DC voltages to the sight head and voltages across the windings of the torque motors. The ampere scale measures the currents of the stiffness motors.

A DC supply meter monitors the 28-volt, DC, supply to the system.

An AC supply meter measures the voltage across one pair of the two pairs of windings of the 28-volt, 400-cycle, 3-phase power supply.

A galvanometer is included on the panel to indicate null or balance in the bridge circuit. It can also be used to balance current flow in components of the system undergoing test.

An internal battery is used for the bridge network.

Power Supply: 115 volts, AC, 60 cycles per second, single-phase.
4.5 volts, DC (internal battery).
28 volts, DC.
28 volts, AC, 400 cycles per second, 3-phase.
300 volts, DC.

Meter Calibrations:
DC Supply: 0 to 30 volts, DC.
AC Supply: 0 to 30 volts, AC.
Voltameter: 0 to 500 volts, DC.
0 to 100 milliamperes.

Frequency Meter: 380 to 420 cycles per second.

MANUFACTURERS' OR CONTRACTORS' DATA:

Sperry Gyroscope Company, Division of Sperry-Rand Corporation, Great Neck, Long Island, New York; Contract No. AF 33(038)-26268.

TUBE COMPLEMENT:

1 WE Type No. 423A.

REFERENCE DATA AND LITERATURE:

TO 33D5-9-27-1 (Operation and Service Instructions).
TO 33D5-9-27-4 (Parts Catalog).

SHIPPING DATA:

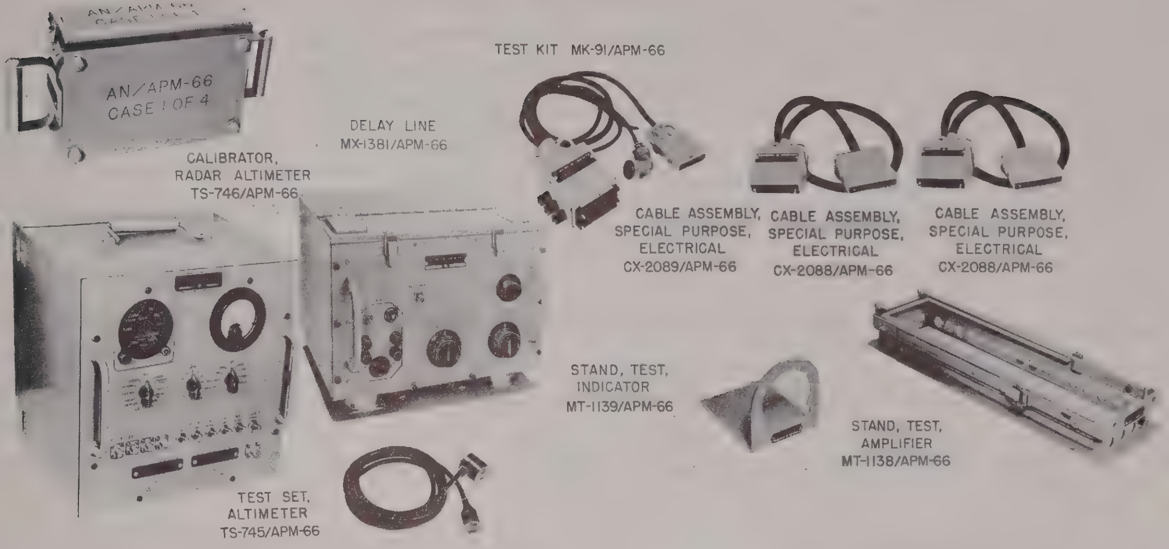
No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Analyzer, System (Sperry 1000041)	13.4	32	26	26-1/2	140

ANALYZER, SYSTEM
Part No. 1, 000, 041
(Sperry Gyroscope Company)

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Analyzer, System (Sperry 1000041)		7CAC-041250	15-3/4	21-3/8	15	60
	Including:						
1	Cable, Amplifier to Power						
1	Cable, Amplifier to Dimmer						
1	Cable, Analyzer to 28-volt						
1	Cable, Analyzer to 115-volt						

RADAR TEST SET AN/APM-66


AN/APM-66
CASE 1 OF 4
TEST KIT MK-91/APM-66
DELAY LINE
MX-1381/APM-66
CALIBRATOR,
RADAR ALTIMETER
TS-746/APM-66
CABLE ASSEMBLY,
SPECIAL PURPOSE,
ELECTRICAL
CX-2089/APM-66
CABLE ASSEMBLY,
SPECIAL PURPOSE,
ELECTRICAL
CX-2088/APM-66
CABLE ASSEMBLY,
SPECIAL PURPOSE,
ELECTRICAL
CX-2088/APM-66
STAND, TEST,
INDICATOR
MT-1139/APM-66
STAND, TEST,
AMPLIFIER
MT-1138/APM-66
TEST SET,
ALTIMETER
TS-745/APM-66

FUNCTIONAL DESCRIPTION:

A special purpose, depot or laboratory type test equipment designed to check the operation, calibration, and to facilitate the maintenance of a radar set by means of simulated signals. The equipment provides a GO-NO-GO check of radar operation at a fixed altitude, provides selective check operations of all circuit functions, measures voltages, currents and heights, controls circuit functions, provides test points for connection to standard test equipment, and calibrates altitude indications.

RELATIONSHIP TO OTHER EQUIPMENT:

Used in testing Radar Set AN/APN-22 (Altimeter).

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The delay line provides a path between the transmitting and receiving antennas of the equipment under test. The length of the delay line is such that an artificial altitude signal of 165±8 feet is produced. The radar altimeter calibrator provides a means of completely calibrating the radar set by supplying highly accurate artificial altitude signals. The calibrator contains a coaxial cable delay line that is used to produce a 20-foot signal, and an electronic means of generating 200 and 3000 foot signals. The altimeter test set provides

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.	Tentative Standard		
STOCK NOS.	7CAC-801319-2215		
PROCUREM'T INFO.: BuAer Spec. MIL-T-945a			
PROCUREM'T COG.: Navy		DESIGN COG.: Navy, BuAer	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.11	
- Electronics Test Equipment -			AN/APM-66

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

RADAR TEST SET AN/APM-66

ELECTROMECHANICAL DESCRIPTION: (Continued)

a means of switching and measuring various altimeter functions. It contains an audio oscillator for use in checking detector balance, and a switching system that permits an external oscilloscope and a VTVM to be connected across various circuit points in the radar set. A test meter provides a means of indicating directly various significant circuit voltages and currents. A height indicator is included to repeat the position of the servo system and for use as a standard against which the indicators of the altimeters can be checked for accuracy and tracking ability.

Power Supply:

115 volts, AC, 320 to 1000 cycles per second, single phase, 0.13 ampere operating current.

115 volts, AC, 380 to 420 cycles per second, single phase, 0.06 ampere operating current.

115 volts, AC, 50 to 1000 cycles per second, single phase, 0.8 ampere operating current.

28 volts, DC, 0.35 ampere.

All these voltages are supplied by the radar set under test, but can be supplied from separate sources.

Frequency Range: 4200 to 4400 megacycles per second.

Tuning Range: 4140 to 4340 megacycles per second.

Type of Transmission: Pulse Modulated.

Radar Altimeter Calibrator: Altitude Selector: 20, 200, 3000 feet.

Delay Line: Altitude Signal: 165±8 feet.

MANUFACTURERS' OR CONTRACTORS' DATA:

Raytheon Manufacturing Company, 100 River Street, Waltham 54, Massachusetts; Navy Contract NOas 52-838.

TUBE COMPLEMENT:

2 JAN-OA2, 1 JAN-5726, 2 JAN-6AN5, 1 JAN-5R4WGY, 1 JAN-6X4W, 2 JAN-6005, 1 JAN-5654, 1-QK381.

REFERENCE DATA AND LITERATURE:

AN 16-30APM66-1 (Operating Instructions).
AN 16-30APM66-2 (Service Instructions).
AN 16-30APM66-3 (Overhaul Instructions).
AN 16-30APM66-4 (Illustrated Parts Breakdown).

SHIPPING DATA:

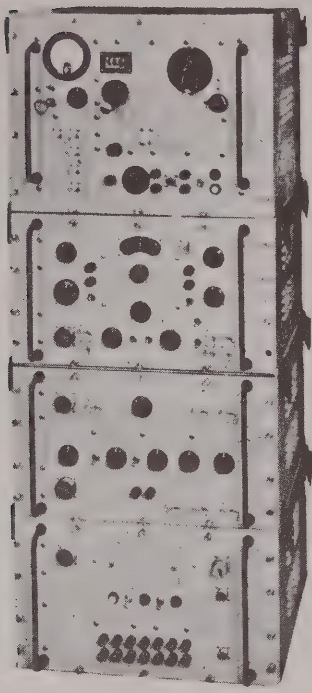
No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Over-all Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

RADAR TEST SET AN/APM-66

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Over-all Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Radar Test Set AN/APM-66		7CAC-801319-2215				
	Including:						
1	Delay Line MX-1381/APM-66			11	26	6	17.6
1	Altimeter Test Set TS-745/APM-66			13-11/16	13-3/4	14-3/16	23.7
1	Radar Altimeter Calibrator TS-746/APM-66			14-3/8	15	10-9/16	33.5
1	Test Kit MK-91/APM-66 Including:						
1	Special Purpose Cable Assembly CX-2088/APM-66			48 long			1.7
1	Special Purpose Cable Assembly CX-2089/APM-66			48 long			2.25
1	Amplifier Test Stand MT-1138 /APM-66			20-1/2	6-3/4	2-3/4	3.5
1	Indicator Test Stand MT-1139 /APM-66			6	4-1/2	5-3/8	0.5

TEST SET AN/ARM-22



FUNCTIONAL DESCRIPTION:

A general purpose test set used to test and adjust TACAN airborne equipment. The test instrument is designed to check bearing, distance, and beacon-identity indications; power output of the transmitter; receiver sensitivity; and decoding of receiver-transmitter unit.

RELATIONSHIP TO OTHER EQUIPMENT:

The AN/ARM-22 replaces the Beacon Simulator HLI-103A.

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The instrument is comprised of four major units; a power supply, pulse generator, range-azimuth calibrator, and signal generator. Video and pulse modulated signals provide the capability for a complete check out of the TACAN equipment. Simulated distance information is accomplished by delaying the interrogation pulse. Simulated bearing information is produced by an amplitude modulated signal similar to that transmitted by the TACAN ground radio beacon antenna.

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.			
PROCUREM'T INFO.: MIL-T-19203			
PROCUREM'T COG.: Navy		DESIGN COG.:	
F.I.I.N.: 6625-523-4291		FUNCTIONAL CLASS. NO.: 10.4.11	

TEST SET AN/ARM-22

ELECTROMECHANICAL DESCRIPTION: (Continued)

Power Supply: 115 volts, AC, 50 to 420 cycles per second, single-phase, 55 watts; 28 volts, DC, 6 amps.

Frequency Range: 962 to 1024 and 1151 to 1213 megacycles per second at 126 fixed frequencies.

Type Transmission: Pulsed CW, positive or negative.

Pulse Repetition Frequency: 15 and 135 pulses per second.

Modulation: Pulsed pairs approximately 3.5 microseconds duration and 12 microseconds apart.

North Reference Burst: 12 pulse pairs 30 microseconds apart.

Auxiliary Reference Burst: 6 pulse pairs spaced 24 microseconds apart.

Distance Pulses: 150 pulse pairs per second triggered during the search mode, 30 pulse pairs triggered during the track mode.

Identity Tone: 1350 pulse pairs per second.

Measuring Range: Distance, 0 to 198 nautical miles in fixed steps; bearing, 0° through 360° continuously variable.

Power Indicating Range: 26 to 36 decibels below 1.0 watt and -40 to -130 decibels below 1.0 watt.

Accuracy: Bearing, ±0.1°; sensitivity, ±2 decibels; power, ±2 decibels; distance, ±0.1%; frequency stability, ±0.005%.

MANUFACTURERS' OR CONTRACTORS' DATA:

Stromberg-Carlson Division, General Dynamics Corporation, 100 Carlson Road, Rochester 3, New York.

TUBE COMPLEMENT:

3 OA2WA, 1 OA3, 1 Chel No. 6336, 29 12AT7WA, 5 5R4WGB, 4 5651, 11 5654/6AK5, 2 5670, 1 5686, 5 5725/6AS6, 8 5726/6AL5, 18 5814A, 3 5876, 5 6AH6, 2 6AU6WA, 2 6C4W, 2 6CL6, 2 6J4WA, 6 6L6WGB, 1 6X4W, 6 6005/6AQ5W, 3 1N21B, 2 1N128, 16 1N216.

REFERENCE DATA AND LITERATURE:

33A1-3-119-1 (Operating Instructions).
33A1-3-119-2 (Service Instructions).
33A1-3-119-4 (Parts Breakdown).

SHIPPING DATA:

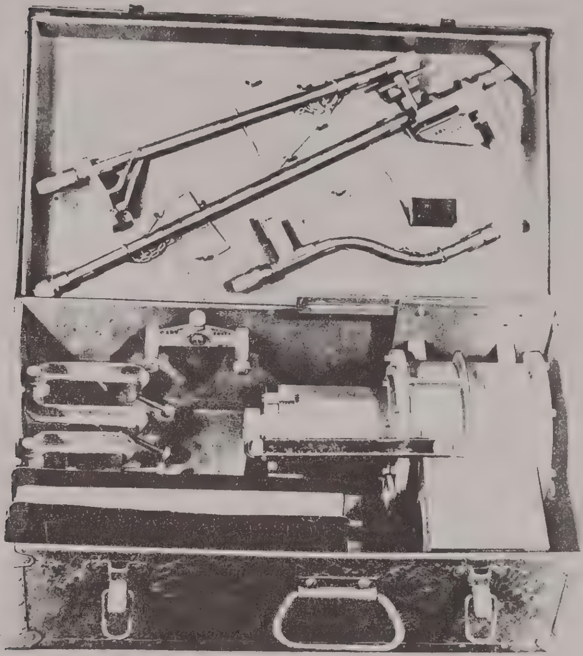
No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
	Test Set AN/ARM-22					
AN/ARM-22	- Electronic Test Equipment -					

TEST SET AN/ARM-22

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Test Set, Radio AN/ARM-22 Consisting of:	metal					
1	Signal Generator SG-318/ARM-22	metal		11-11/32	19-1/4	17-3/8	75
1	Pulse Generator SG-317/ARM-22	metal		11-11/32	19-1/4	17-3/8	45
1	Range and Azimuth Calibrator SM-142/ARM-22	metal		11-11/32	19-1/4	17-3/8	65
1	Power Supply PP-2110/ARM-22	metal		11-11/32	19-1/4	17-3/8	85
1	Dolly Truck						45

RADAR TEST SET, RADAR AN/UPM-7



FUNCTIONAL DESCRIPTION:

A portable, special purpose equipment designed for performance checks of radars in the frequency band of 2700 to 3100 megacycles per second. Used to test transmission line losses, standing-wave ratios, antenna radiation patterns, forward and backward resistance of crystal rectifiers, frequency and average power output of radar transmitters, and to conduct a rough spectrum analysis. Performance indications are displayed on meters, a vernier calibrated frequency dial and the scope of the radar under test.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The kit contains three separate units consisting of Power Meter TS-125/AP, Crystal Rectifier Test Set TS-268E/U, and Echo Box OBU-4. TS-125/AP descriptive data may be located in Volume 14 and TS-268E/U data may be located in Volume 10. The echo box consists essentially of a tun-

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.		Standard	
STOCK NOS.			
PROCUREM'T INFO.:			
PROCUREM'T COG.: Navy		DESIGN COG.: Navy, BuShips	
F.I.I.N.: 6625-643-3356		FUNCTIONAL CLASS. NO.: 10.4.11	
	- Electronics Test Equipment -	AN/UPM-7	

RADAR TEST SET, RADAR AN/UPM-7

ELECTROMECHANICAL DESCRIPTION: (Continued)

able high Q resonant cavity. A chart is provided for conversion of dial markings to frequency in megacycles per second. For power measurements, the echo box is provided with an adjustable coupled loop, a rectifier and a meter. The meter indicates the average rectified current in microamps from which power may be computed. An N-type female coaxial receptacle is provided on the side of the echo box for connection of cables from a directional coupler or pickup dipole.

Frequency Range:
Echo Box: 2900 to 3100 megacycles per second.
Wavemeter: 2830 to 3170 megacycles per second.
Sensitivity: 80 yards per decibel, ringing time.
Temperature Coefficient: +1% for each -10°F.
Spurious Response: 500 yards maximum from 2830 to 3170 megacycles per second.
Meter Accuracy:
Performance Test: ±5 decibels.
Frequency Test: ±6 megacycles per second.

MANUFACTURERS' OR CONTRACTORS' DATA:

Johnson Service Company, Milwaukee, Wisconsin; Contract or Order Number NXsr-86351.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

NavShips 91727 Electronics Test Equipment Application Guide; Ships 334(A) Instruction Book.

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
2	Test Kit, Radar AN/UPM-7	10. 3				

RADAR TEST SET, RADAR AN/UPM-7

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Test Kit, Radar AN/UPM-7 Including:						
1	Case, Carrying			20-1/2	12	8-1/2	
1	Box, Echo OBU-4			11-9/16	7-13/16	11-1/2	10
1	Mounting, Shock						
1	Bracket, Supporting Echo Box						
1	Strap, Carrying						
1	Wrench, Socket						
1	Wrench, Spanner						
1	Gage, Plunger Positioning						
1	Bracket S01, Pendleton NT-10475						
1	Bracket S01, Wentworth or SG NT-10476						
1	Bracket SF NT-49797						
1	Bracket SJ NT-10477						
1	Box Spare Equipment			18	8-1/2	5	

(Continued)

RADAR TEST SET, RADAR AN/UPM-7

EQUIPMENT SUPPLIED: (Continued)

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Cable Connecting RG-8/U			60 long			
1	Dipole, Pickup NT-66AJG						
1	Cable, Calibrated 7 decibels RF-21/U.CG-171/AP						
1	Pad, Calibrated 10 decibels TPS-51PB/10 or CN-42/UP						
1	Pad, Calibrated 16 decibels TPS-51PB/16 or CN-43/UP						
1	Checker, Crystal TS-268E/U			3	6	7	3
1	Meter, Power TS-125/AP			10	7-7/8	5-5/16	12
1	Probe, Standing Wave						
1	Adapter N Jack to N Jack UG-29/U						

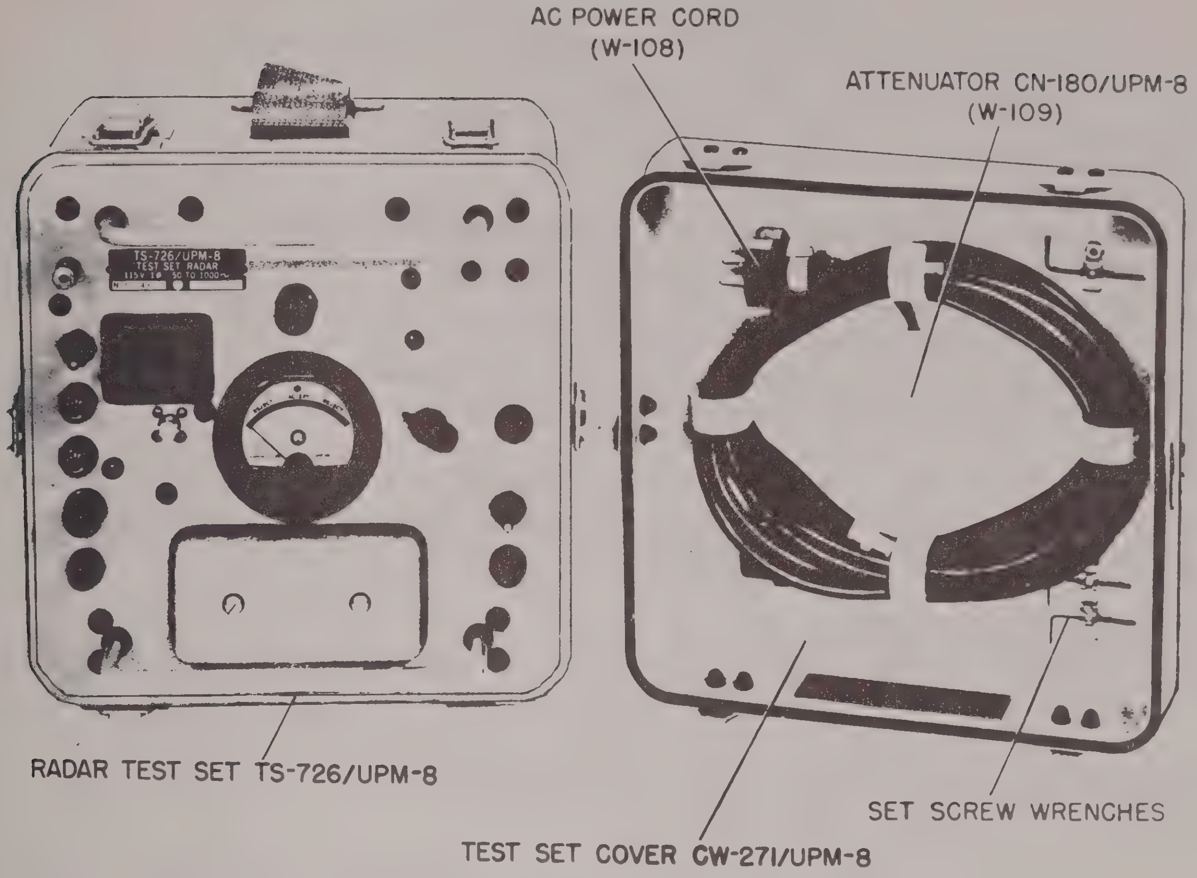
(Continued)

RADAR TEST SET, RADAR AN/UPM-7

EQUIPMENT SUPPLIED: (Continued)

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Adapter N Jack to Holmdel UG-8/AP						

RADAR TEST SET AN/UPM-8


AC POWER CORD
(W-108)
ATTENUATOR CN-180/UPM-8
(W-109)
TS-726/UPM-8
TEST SET RADAR
115 V 1Φ 50 TO 1000~
RADAR TEST SET TS-726/UPM-8
SET SCREW WRENCHES
TEST SET COVER CW-271/UPM-8

FUNCTIONAL DESCRIPTION:

A portable, general purpose test set designed to perform rapid pre-flight checks of installed transponder (IFF) sets. The instrument is used to check the transmitter frequency, relative power output, decoding mode 1, 2 or 3 interrogations, reply coding, receiver frequency and relative receiver triggering level.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: Basically the test set is comprised of a low-level crystal-controlled signal generator, a low-sensitivity crystal-controlled receiver and power-measuring pulse-counting and metering circuits.

Power Supply: 115 volts ±10%, AC, 50 to 1000 cycles per second, 125 watts.

Input Characteristics:

Frequency Range: 1007.5 to 1032.5 megacycles per second.

Pulse Repetition Frequency: 900 ±25 pulse pairs per second.

	AIR FORCE	NAVY	ARMY
TYPE CLASS.	Standard		
STOCK NOS.			
PROCUREM'T INFO.: MIL-R-15219			
PROCUREM'T COG.: Navy		DESIGN COG.: Navy	
F.I.I.N.: 6625-344-1289		FUNCTIONAL CLASS. NO.: 10.4.11	
	- Electronics Test Equipment -		AN/UPM-8

ELECTROMECHANICAL DESCRIPTION: (Continued)

Pulse Duration: 0.7 to 1.2 microseconds.
Pulse Spacing: 3, 5 or 8 microseconds ±0.2 microseconds.
Sensitivity: 48 to 100 decibels below 1.0 volt.

Output Characteristics:
Frequency Range: 1087.5 to 1112.5 megacycles per second.
Frequency Tolerance: ±3 megacycles per second.
Pulse Duration: 0.9 to 1.3 microseconds.
Pulse Type: Single, paired or quadruple.
Pulse Spacing: 3, 5 or 8 microseconds ±0.2 microseconds.
Pulse Repetition Frequency: 900 ±25 pulse pairs per second.

MANUFACTURERS' OR CONTRACTORS' DATA:

Hazeltine Electronics Corporation, Little Neck, New York; Contract No. NObsr 49225, NObsr 59299 and NObsr 57585.

TUBE COMPLEMENT:

1 OA2, 1 OB2, 1 2D21, 2 6AH6, 2 6AK5W, 1 6AL5, 6 6AN5, 1 6AU6, 3 6D4, 2 6F4, 2 6X4, 2 12AT7, 2 12AU7, 1 5675, 1 5687, 1 5876, 8 1N70, 2 1N72.

REFERENCE DATA AND LITERATURE:

NavShips 91537(A) Instruction Manual.

SHIPPING DATA:

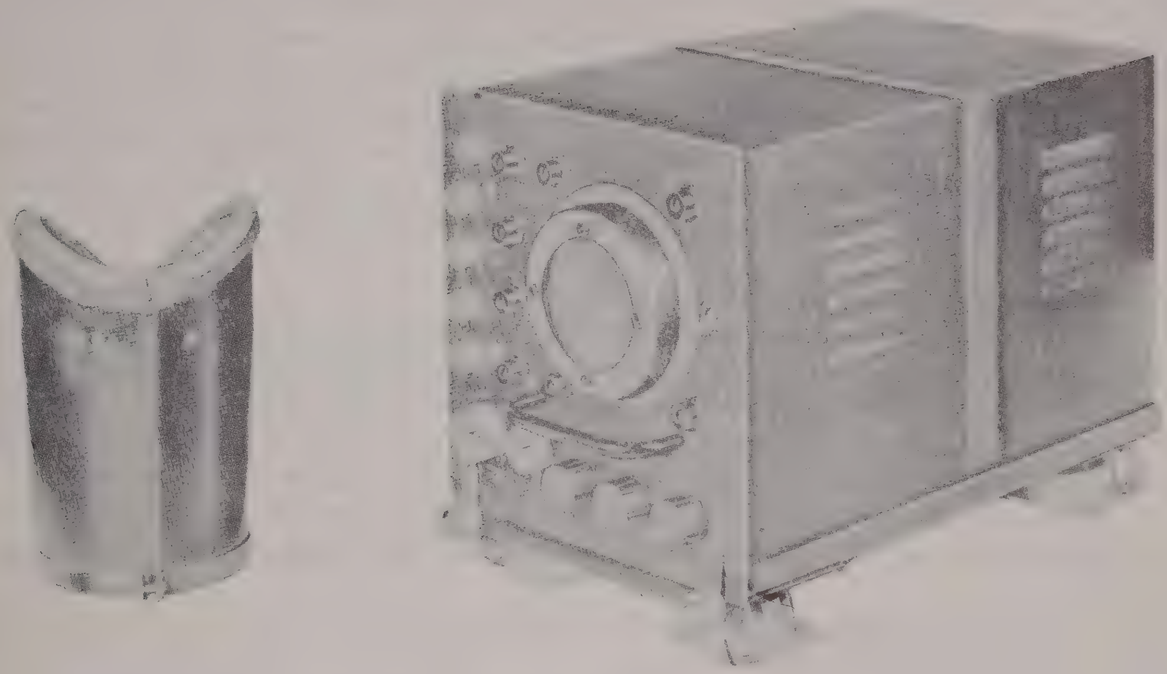
No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Radar Test Set, AN/UPM-8	2-1/2	15-5/8	15-1/2	17-3/4	63

RADAR TEST SET AN/UPM-8

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Radar Test Set AN/UPM-8 Including:	metal		12-1/4	12-3/8	12-3/8	33.1
1	Test Set TS-726/UPM-8	metal		8-1/4	11-3/4	11-3/4	27
1	Carrying Case CW-271/UPM-8	metal		12-1/4	12-3/8	12-3/8	4
1	Power Cable			120 long			0.8
1	Attenuator CN-180/UPM-8			120 long			0.4
1	No. 4 Set Screw Wrench						0.1
1	No. 6 Set Screw Wrench						0.1
1	No. 8 Set Screw Wrench						0.1
1	Instruction Book for AN/UPM-8			11-1/2	9	1/2	0.1

INDICATOR BC-929-A
(INDICATOR, AZIMUTH AND RANGE, BC-929-A)



FUNCTIONAL DESCRIPTION:

A portable, special purpose unit which is used in all echelons of maintenance to take the place of the indicator installed with service equipment during operational testing of components of radar sets used as airborne radar navigation aids. In service this indicator gives a visual presentation of distance and direction with respect to the line of flight to a ground beacon station or to planes using IFF equipment. It normally operates in conjunction with the receiver section of a radar receiver-transmitter. A motor driven switch alternately connects the right and left receiving antenna leads to a common terminal, and the corresponding video output of the receiver alternately from the right to the left horizontal deflection plates of the cathode ray tube. The indicator shows visually on the 3 inch cathode ray tube screen the signals received by the respective receiving antennas after the signals have passed through the receiver section of the receiver-transmitter. In its testing function this indicator shows many clues to malfunctions of the receiver or related circuitry by variations in the cathode ray tube indication.

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	1690-212575500		2C1550-929
PROCUREM'T INFO.: USAF Spec. 371-1739			
PROCUREM'T COG.: USAF		DESIGN COG.: USAF, C&N	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.11	
- Electronics Test Equipment -			BC-929-A

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

340

INDICATOR BC-929-A
(INDICATOR, AZIMUTH AND RANGE, BC-929-A)

RELATIONSHIP TO OTHER EQUIPMENT:

Originally, this equipment was used as part of Radio Set, SCR-729-A in service, and also part of the test equipment necessary to maintain that set. However, it is presently used in testing Radar Set AN/APN-68 and Radar Beacon AN/APN-76 and 76A. The indicator component used in service with these sets is similar to the BC-929-A, except that there are no left and right receiving inputs because the sets do not use right and left antenna systems. Instead there are receiving and transmitting antennas. Therefore, when using the BC-929-A, the motor switch is not used, and the right and left receiving inputs are tied together at the common terminal.

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: A standard oscilloscope circuit is modified by the addition of the motor driven switching circuit for right and left receiving antenna inputs, and several interconnections between the radio receiver and its inputs and outputs.

Power Supply: 24 volts, DC, 0.5 amperes, only when using the motor driven switch. 115 volts, AC, 400 to 2400 cycles per second, 0.33 amperes; or 80 volts, AC, 400 to 2400 cycles per second, 0.48 amperes, single phase, 38 volt-amperes, 0.95 power factor, supplied by the receiver-transmitter under test or by a separate source.

Video Input: 120 volts, maximum.

Video Input Impedance: 500 ohms or less.

Distance Ranges: 0 to 10, 0 to 50, 0 to 100 nautical miles (or statute miles by replacing the cathode ray tube screen scale).

Temperature Range: -45.5° C. to +66° C., operational.

Altitude Range: Sea Level to 35,000 feet, operational.

MANUFACTURERS' OR CONTRACTORS' DATA:

Philco Corporation, Philadelphia, Pennsylvania; USAF Order Nos. 5759-WF-43, 489-DAY-45-RA, and 272-44, dated 11 July 1944; Approximate Cost per Unit, $171.00.

Delco Products Company, Dayton, Ohio; Order Nos. 423-44 dated 10 July 1944 and 918-44 dated 25 August 1944; Approximate Cost per Unit, $138.00.

TUBE COMPLEMENT:

2 JAN-6SN7GT, 1 JAN-6G6G, 2 JAN-6H6GT, 1 JAN-2X2/879, 1 JAN-6X5GT, 1 JAN-3BP1.

REFERENCE DATA AND LITERATURE:

TO 16-40SCR729-3 (Maintenance Instructions for SCR-729-A and -AZ).

TO 16-30APN2-3 (Maintenance Instructions for AN/APN-2).

INDICATOR BC-929-A
(INDICATOR, AZIMUTH AND RANGE, BC-929-A)

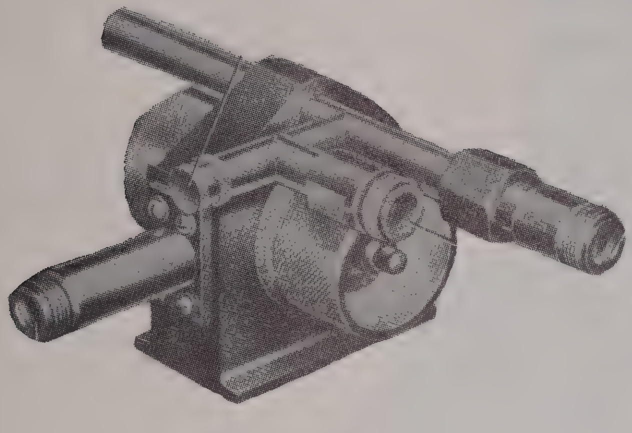
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

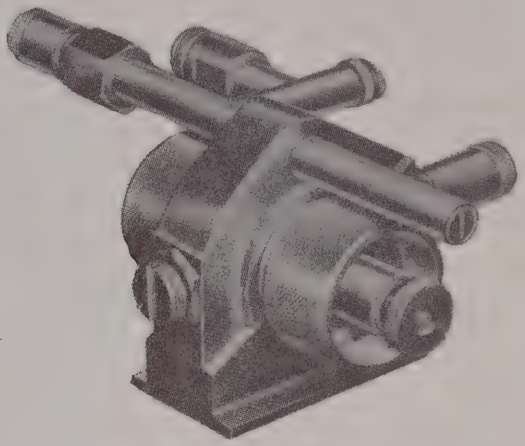
EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Indicator BC-929-A	Aluminum	1690-212575500 2C1550-929	8-7/8	16	8-3/4	26
1	Mounting FT-409-A						
1	Visor			7-3/4 long			

DUMMY TRANSMIT-RECEIVE BOX TS-193B/CPM-4



FRONT VIEW



REAR VIEW

FUNCTIONAL DESCRIPTION:

A portable, special purpose unit used to test and align radio and radar receivers without interfering with the normal operation of the prime equipment. It is used in organizational, field, and depot testing.

RELATIONSHIP TO OTHER EQUIPMENT:

Used to test Radio Set AN/CPS-1 and Radar Set AN/CPS-4.

Similar to TS-193/CPM-4 and TS-193A/CPM-4 but has improved performance due to a rhodium flash feature.

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: Consists of a T/R cavity approximately 2.15 inches in diameter by 0.59 inches wide, a crystal mixer, and a coupling loop. The coupling loop provides for the RF input. The T/R cavity contains a type 1B27 tube by which fine tuning of the cavity is set. A crystal contained in the mixer rectifies

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.	Substitute Standard		
STOCK NOS.	7CAC-177659-5		3F4325-193B
PROCUREM'T INFO.:	USAF Spec. No. C-7415		
PROCUREM'T COG.:	USAF	DESIGN COG.:	USAF, Rome
F.I.I.N.:		FUNCTIONAL CLASS. NO.:	10.4.11
	- Electronics Test Equipment -		TS-193B/CPM-4

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

DUMMY TRANSMIT-RECEIVE BOX TS-193B/CPM-4

ELECTROMECHANICAL DESCRIPTION: (Continued)

the signal and passes it on to the receiver. The coupling of the local oscillator to the receiver is adjusted by a screw which projects into one side of the mixer.

Power Supply: None.

Frequency Range: 2700 to 2900 megacycles per second, input; 30 megacycles per second, output.

Impedance: 50 ohms, input; 300 ohms, output.

Capacitance: 12 micromicrofarads, output.

MANUFACTURERS' OR CONTRACTORS' DATA:

Press Wireless Manufacturing Company, West Newton, Massachusetts; Mfg. Dwg. No. D-70186; Contract No. AF 33(038)11716; Approximate Cost per Unit, $200.00, dated 7 September 1950.

Bruno-New York Industries Corporation, New York, New York; Contract No. AF 33(038)26780; Approximate Cost per Unit, $150.00, dated 1 June 1951.

TUBE COMPLEMENT:

1 JAN-1N21B, 1 JAN-1B27.

REFERENCE DATA AND LITERATURE:

TO 16-35TS193-2 (Service Instructions).
TO 16-35TS193-3 (Overhaul Instructions).
TO 16-35TS193-4 (Parts Breakdown).
TO 16-55-195 (Spare Parts List).

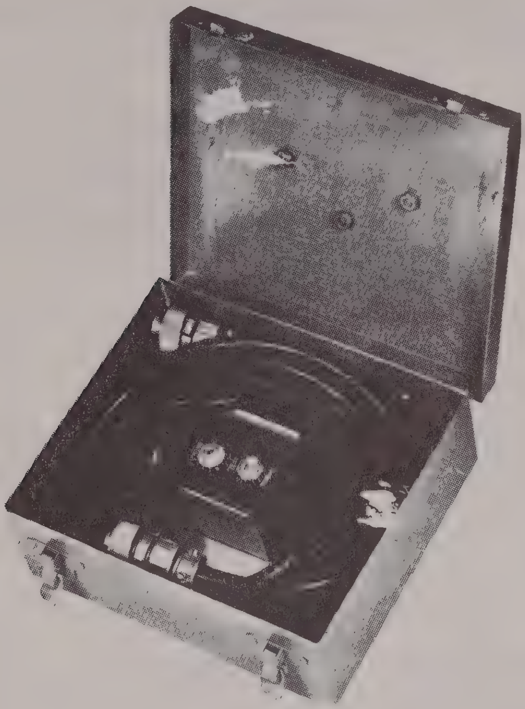
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Dummy Transmit-Receive Box, TS-193B/CPM-4	7	7CAC-177659-5 3F4325-193B	4-3/4	4-3/4	6-1/4	4.5

TEST SET TS-477/APN-19
(TEST SET, RADAR, TS-477/APN-19)



FUNCTIONAL DESCRIPTION:

A portable, special purpose set used in conjunction with other test equipment to aid in the maintenance and testing of aircraft installations of Radar Beacon AN/APN-19. It can also be used in bench testing this beacon, thereby eliminating other equipment which would be used to interrogate the transmitter. This set serves as a remote control box in monitoring the radar beacon. The main component, a test box, includes a single pole double throw toggle switch, for "TEST" or "NORMAL" operation of the beacon, a phone jack for headset connection, and a cable jack. A cable provides connection between the control box of the beacon and the test box.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: In "NORMAL" position, a switching and transmission circuit brings the beacon audio signal to a remote phone jack to aid in monitoring the

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.	Substitute Standard		
STOCK NOS.			
PROCUREM'T INFO.: USAF Dwg. No. X45B40835			
PROCUREM'T COG.: USAF		DESIGN COG.: USAF, C&N	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.11	
	- Electronics Test Equipment -		TS-477/APN-19

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TEST SET TS-477/APN-19
(TEST SET, RADAR, TS-477/APN-19)

ELECTROMECHANICAL DESCRIPTION: (Continued)

beacon's operation at the test location. In "TEST" position, another switching circuit alters the transmitter circuitry so that the responsor becomes a free-running oscillator.

Power Supply: None.

Pulse Recurrence Rate of Beacon During Free Run: 1000 cycles per second ±10%.

MANUFACTURERS' OR CONTRACTORS' DATA:

United Cinephone Corporation, Torrington, Connecticut; USAF Order No. 2256-DAY-45-AR.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 16-30APN-19-2 (Operating Instructions for AN/APN-19).
TO 16-30APN-19-3 (Maintenance Instructions for AN/APN-19).

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Test Set TS-477/APN-19 Including:						
1	Test Box TS-C1/APN-19			2-1/2	3-5/8	2	3
1	Cord CX-923/U			180 long			3
1	Case CY-529/AP	Aluminum		3	8	8	1

TEST SET, RADAR, PRESSURIZATION
Part No. 486396-100
(Hughes Aircraft Company)

FUNCTIONAL DESCRIPTION:

A portable semi-automatic test unit designed for field use in pressure-checking and testing of airborne dual-pressure radar equipment. The test set incorporates an electric motor driven air pump capable of producing both high and low pressures in the radar system. The pump supplies dry air to a single outlet through a system of pressure control valves. A four-way selector valve reverses the pump connections to supply a vacuum for checking pressure control and interlock switches which are set below atmospheric pressure. A pressure gage, graduated in inches of mercury absolute from 10 to 100, indicates pressure as selected by the pressure selector valve. The equipment is capable of delivering 3/4 cubic foot minimum of free air per minute at 60 inches of mercury absolute discharge pressure and at standard sea-level inlet conditions.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

A pressure switch maintains an accurate setting of the absolute pressure to 60 inches of mercury, ±0.5 inch. A toggle switch controls the high or low

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAD-801319-21		
PROCUREM'T INFO.:			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.11	
	- Electronics Test Equipment -		Hughes 486396-100

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

TEST SET, RADAR, PRESSURIZATION
Part No. 486396-100
(Hughes Aircraft Company)

ELECTROMECHANICAL DESCRIPTION: (Continued)

pressure flow, either through a restricted high pressure line to the waveguide, or directly to the receiver-transmitter for a low pressure supply. A manual two-position valve reverses the pump connections to establish pressures below ambient atmospheric pressure. A push-to-test indicating light is illuminated whenever electrical power is supplied to the test set and the receiver-transmitter pressurizing switch is in the on position. A panel mounted mechanical start, stop clock with a sweep second hand is used to check leakage rates.

Power Supply: 26±6 volts, DC.

MANUFACTURERS' OR CONTRACTORS' DATA:

Hughes Aircraft Company, Florence and Teale Streets, Culver City, California; Contract No. AF 33(038)17618.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 33D5-8-6-1 (Operation and Service Instructions).
TO 33D5-8-6-4 (Illustrated Parts Breakdown).

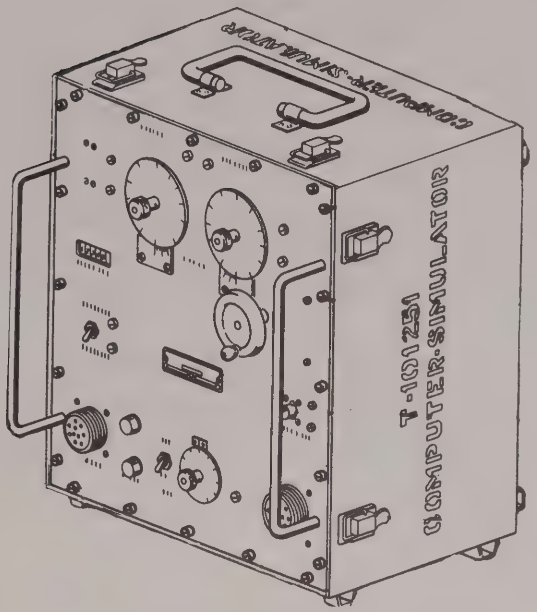
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	
1	Test Set, Radar, Pressurization Hughes Part No. 486396-100		17	21	19	52

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	TestSet, Radar, Pressurization Hughes Part No. 486396-100		7CAD-801319-21	10.41	14.59	13.42	30
1	Cable Assembly			150 long			
1	Hose Assembly			120 long			

COMPUTER SIMULATOR
Part No. T-101251
(Sperry Gyroscope Company)



FUNCTIONAL DESCRIPTION:

A portable organizational level tool used in conjunction with Air Portable Test Bench Group T-101260 to supply signals normally supplied by the type A-1A Bombing Navigational Computer to the Interconnection and Radar Equipment of the type K Bombing Navigational System. By supplying signals from an independent source, the simulator makes it possible to check those functions of the Interconnection and Radar Equipment normally interrelated with those of the type A-1A Bombing Navigational Computer.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: This Computer Simulator consists of six basic circuits: (1) the Slant Range Circuit which, by means of a range gear train, controls the slant range signals supplied by the simulator. (2) The PPI Offset Circuit which produces $\sin\phi$ and $\cos\phi$ voltages which are transmitted to the horizontal and vertical

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-725315		
PROCUREM'T INFO.:			
PROCUREM'T COG.:	DESIGN COG.: Commercial		
F.I.I.N.:	FUNCTIONAL CLASS. NO.: 10.4.11		
	- Electronics Test Equipment -	Sperry T-101251	

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

COMPUTER SIMULATOR
Part No. T-101251
(Sperry Gyroscope Company)

ELECTROMECHANICAL DESCRIPTION: (Continued)

displaced center amplifiers of the radar synchronizer. (3) The PPI Sweep Expansion Circuit which, for ground ranges less than 16.5 miles, produces a voltage proportional to the ground range which is transmitted to Radar Set AN/APS-23, and for ground ranges greater than 16.5 miles, produces a sweep expansion voltage. (4) The Range Azimuth Indicator Sweep Expansion Circuit which transmits a voltage proportional to the ground range to the interconnection equipment. (5) The Sweep Delay Circuit which transmits a voltage proportional to altitude to the radar equipment. (6) The Azimuth Gear Train which, by means of a combination of synchros and switches, controls azimuth orientation of the PPI presentation of the radar equipment.

Power Supply: Supplied by the type A-1A Bombing Navigational Computer.

MANUFACTURERS' OR CONTRACTORS' DATA:

Sperry Gyroscope Company, Division of the Sperry-Rand Corporation, Great Neck, Long Island, New York.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 33D5-5-77-1 (Operation and Service Instructions).
TO 33D5-5-77-4 (Illustrated Parts Breakdown).

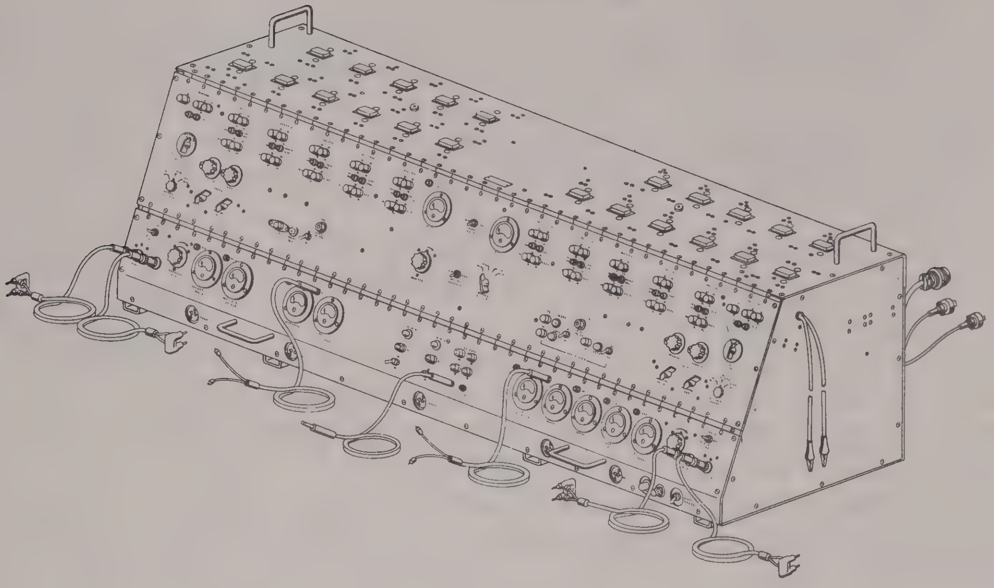
SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock (USAF) Numbers (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Computer Simulator (Sperry T-101251)	Metal	7CAC-725315	16-1/2	15-3/4	12	20

CONTROL, RADAR SET
Part No. 1, 000, 273
(Sperry Gyroscope Company)



FUNCTIONAL DESCRIPTION:

This is a portable self-contained device for operating and controlling the radar portion of the MA-1 Fire Control System for maintenance purposes. This control is used when it is desirable to operate the radar without access to the normal sight-head controls.

RELATIONSHIP TO OTHER EQUIPMENT:

ELECTROMECHANICAL DESCRIPTION:

Circuit Information: The radar control set is basically a switching device which is used to control the radar by applying 28 volts, DC, power to the coils of various relays in the radar assembly.

The control set contains the following switches:

(a) A mode selector switch for selecting the air or ground mode of operation of the radar. In the caged position the switch cages the range gate, stopping the radar from searching in range.

(b) A function selector switch for controlling the application of power to the

(Continued)

	AIR FORCE	NAVY	ARMY
TYPE CLASS.			
STOCK NOS.	7CAC-224123-6		
PROCUREM'T INFO.:			
PROCUREM'T COG.:		DESIGN COG.: Commercial	
F.I.I.N.:		FUNCTIONAL CLASS. NO.: 10.4.11	
	- Electronics Test Equipment -		Sperry 1, 000, 273

This project was supported by the USAF on Contract AF 33(600)28276 and monitored by WADC, ARDC - Carl L. Frederick, Bethesda, Md. - Multilithed in U. S. A.

CONTROL, RADAR SET
Part No. 1,000,273
(Sperry Gyroscope Company)

ELECTROMECHANICAL DESCRIPTION: (Continued)

radar. In the standby position, power is applied to all circuits except the high voltage circuits in the modulator. This brings into operation the three-minute time delay mechanism in the radar. In the operating position, all circuits are energized.

(c) A range gate toggle switch for unlocking the radar range gate, permitting it to sweep in or out in range in order to lock on another target or calibration pip.

(d) A range calibrating switch for energizing the circuits in the radar that supply a series of video signals approximately 500 yards apart in range for a quick check of ranging circuit.

The control set also includes a pilot lamp which lights to indicate that the three-minute time delay has elapsed and that the radar is in operation.

A cable is provided to connect the test set with the radar.

A transit case is provided for the control set.

Power Supply: All electrical power controlled by, or used in, the control set is supplied by the radar equipment under test.

Connector: AN type.

MANUFACTURERS' OR CONTRACTORS' DATA:

Sperry Gyroscope Company, Division of the Sperry-Rand Corporation, Great Neck, Long Island, New York.

TUBE COMPLEMENT:

None.

REFERENCE DATA AND LITERATURE:

TO 33D5-8-17-1 (Operation and Service Instructions).

SHIPPING DATA:

No. of Boxes	Contents & Identification	Volume (Cu. Ft.)	Overall Dimensions (inches)			Weight Packed (Lbs.)
			H	W	D	

CONTROL, RADAR SET
Part No. 1, 000, 273
(Sperry Gyroscope Company)

EQUIPMENT SUPPLIED:

Quant. Per Eq'pt	Name and Nomenclature	Case Mat'l	Stock Numbers (USAF) (Navy) (Army)	Overall Dimensions (inches)			Weight (Lbs.)
				H	W	D	
1	Control, Radar Set (Sperry 1000273)		7CAC-224123-6	4	6-1/2	3-3/4	
1	Transit Case			5	9	9	
1	Cable						
						Total:	5-1/2